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**AT SOME POINT, THE WILL TO CONSERVE OUR NATURAL RESOURCES HAS TO RISE UP FROM THE HEART AND SOUL OF THE PEOPLE – CITIZENS THEMSELVES TAKING CONSERVATION INTO THEIR OWN HANDS AND, ALONG WITH THE SUPPORT OF THEIR GOVERNMENT, MAKING IT HAPPEN.**

– Mollie H. Beattie,  
former Director,  
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## WATERSHED STEWARDSHIP ACTION KIT

# 10 Steps to Cleaner Water



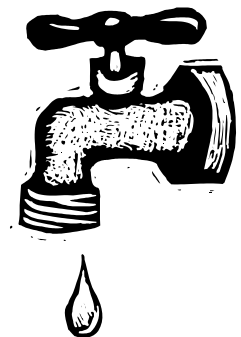
### 1. EDUCATE YOURSELF.

- Learn the characteristics of a healthy watershed and the functions and values of streams and wetlands.
- Learn how sediment, suspended solids, pH, nutrients, pesticides, metals, oil, and other potential pollutants harm local waterways.
- Gather information about how these pollutants may be affecting your watershed at your local library and on the Internet.
- Contact your state for copies of reports assessing the water quality of state rivers and wetlands. Your state may have a variety of pamphlets about river and wetland protection, habitat improvement, erosion control measures, volunteer organizing, and local environmental conservation laws.
- Check the Izaak Walton League's online resource list at [www.iwla.org/sos/resources/](http://www.iwla.org/sos/resources/).
- Research existing government and nonprofit programs and inform your local community and conservation groups about them.

### 2. CHANGE YOUR BEHAVIOR.

Find out how you can conserve water by making small changes in your everyday behavior. Here are some tips:

- Fix leaky faucets.
- Install low-volume toilets or reduce the volume of your existing toilets by placing water-filled plastic bottles in the tanks.
- Find and repair toilet leaks. To check for leaks, put food coloring in the tank. If colored water appears in the bowl after 30 minutes without flushing, there is a leak.
- Do not run water continuously while brushing teeth, shaving, or washing dishes.
- Only run dishwashers and clothes washers when there is a full load.
- Take shorter showers.
- Install a water-conserving showerhead.
- Consider not using garbage disposals because they consume large amounts of water and add organic materials to sewage treatment systems.
- Landscape your home with native trees, shrubs, and flowers that do not need to be watered or fertilized.



- If you need to water plants, use drip irrigation or soaker hoses. Capture rainwater from rooftops in rain barrels and use it to water plants.
- Ask your state cooperative extension office for help in testing your soil to make sure you use the right amount of fertilizer. Excess fertilizer washes into streams when it rains, which may cause algae growth and reduced levels of dissolved oxygen.
- Take used motor oil to a recycling center or a gas station that recycles it. Oil poured down drains goes into streams, and oil thrown away in the trash may leach from sanitary landfills to contaminate ground water.
- Do not pour household chemicals such as paint or cleaners down drains, storm drains, or on the ground. Better yet, select household cleaning products with low toxicity or pick a non-toxic alternative (see table).
- Participate in local programs for hazardous household waste disposal.
- Inspect septic systems annually and pump them out every three to five years.
- Clean up after pets and dispose of wastes in the trash or toilet.

### 3. BECOME A WATCHDOG FOR LOCAL WATER RESOURCES.

To be an effective watershed steward, you need to stay informed about the laws designed to protect our nation's water resources. Familiarize yourself with the Clean Water Act, which has provisions for citizen protection of rivers and wetlands, such as citizens' suits against polluting industries and citizen involvement in the permit review process. For more information on the Clean Water Act, see the fact sheet "Understanding and Using the Clean Water Act" in this kit. On a local level, you should also educate yourself about how particular industries might be affecting your watershed. All industries discharging wastewater into a waterway must have a National Pollution Discharge Elimination System (NPDES) permit, which regulates the type and amount of wastes allowed in industrial discharge. Contact your state's water-quality agency and get on its mailing list for permit review. Make comments on any permit applications that appear for your watershed, and encourage the use of alternative technologies that produce less pollution. Obtain copies of the permits already issued that affect your local stream. If you

## ALTERNATIVES TO HAZARDOUS HOUSEHOLD CHEMICALS

Household Chemical	Environmentally Friendly Alternative (s)
Ammonia-based cleaners	Vinegar, salt and water
Abrasive cleaners	•Lemon dipped in borax •Salt and baking soda
Furniture polish	Lemon juice and olive oil
Toilet cleaner	Baking soda
Oven cleaner	Liquid soap, borax, and warm water
Disinfectants	Water and borax
Drain cleaners	Boiling water, baking soda, and vinegar
Upholstery cleaners	Dry cornstarch
Mothballs	•Cedar chips •Lavender flowers
Plant insecticide	Soap and water
Silver polish	Soak in water, salt, baking soda, and a piece of aluminum
Window cleaner	White vinegar and water

detect a permit violation in the field through water quality monitoring, document the problem and report it to your state's water-quality agency. A failure to comply with permit requirements is a violation of the Clean Water Act and is subject to enforcement and fines.

Permits also are required to fill in or destroy wetlands. Citizens can provide comments about applications for permits to alter wetlands and can report violations of wetland law. Regulatory agencies are unable to discover and address every wetland violation that occurs. Citizen complaints often trigger enforcement actions. You can ensure that you are notified of permit applications in your area by contacting the Army Corps of Engineers office in your state.

#### **4. ADVOCATE FOR BETTER WATERSHED CONSERVATION LAWS.**

National and local regulation provide an excellent avenue for conserving the country's watersheds. For example, under the Clean Water Act, factories and other industries that discharge waste into waterways are required to apply for a permit and comply with certain standards or face steep fines or imprisonment. To keep current watershed conservation laws in place and to pass better laws, constituents need to tell their elected officials that clean water is an important issue. For more information on national watershed policy, advocacy tips, and action alerts on the most current conservation policy opportunities, please visit the League's Web page at [www.iwla.org](http://www.iwla.org) and click on "Take Action." This site also provides an easy way to send messages to members of Congress and to keep track of their votes on important conservation issues. In addition to advocating for better regulations on a national basis, you should get involved locally. Attend public hearings on watershed conservation issues. Present information about the importance of local water resources to planning commissions and local elected officials. For more information on getting started with local advocacy, contact the League.

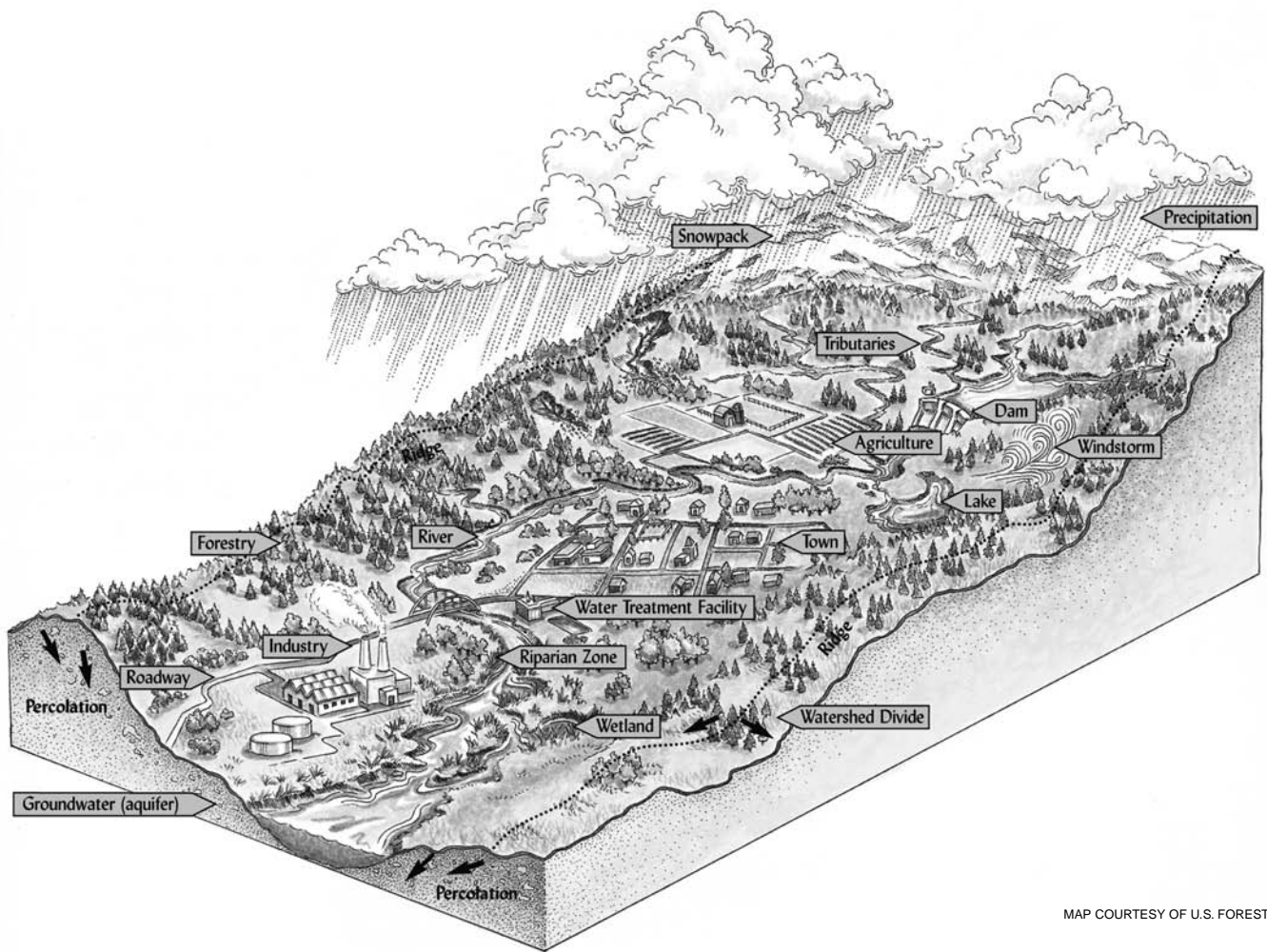


#### **5. JOIN AN EXISTING WATER CONSERVATION GROUP OR FORM A NEW GROUP.**

Join a local Izaak Walton League chapter or a local watershed association. If there are no chapters or associations in your community, you may want to form a new League chapter or watershed group. There are many steps involved in getting started, but the first may be to find the right leader. The backbone of an organization is a strong leader, who should have enough time to devote to overseeing a project. This individual should be able to find the right people to fill various roles within the group and then be able to follow through in a supportive way to ensure that the work gets done. For more information on starting a group, refer to the factsheet "A Guide to Watershed Cleanups" in this kit.

Remember to work with other interested groups. All waterway conservation efforts can benefit from additional funds, volunteers, publicity, materials, technical knowledge, and other resources. Begin making a list of all the resources available to keep your project going. Survey your community for talent. Izaak Walton League chapters, other conservation organizations, civic associations, garden clubs, Boy and Girl Scout troops, government agencies, local corporations, universities, volunteer service corps, and many other groups can help. Many retired people have good backgrounds in natural sciences and can help with stream monitoring programs, water quality testing projects, fish and wildlife habitat areas, or legal and technical advice. Your city council, chamber of commerce, Conservation Corps, Junior League, or parks department might be able to donate equipment or funds. Approach local corporations and businesses for volunteers, project sites, funding, and in-kind donations. Many government agencies, private organizations, and foundations also fund local water conservation projects.

For more information on project planning and funding sources, contact the League's Watershed Assistance, Training, and Educational Resource (WATER) Center at (800) 284-4952 or [sos@iwla.org](mailto:sos@iwla.org). For information on League chapters near you or for information on forming a new chapter, visit the League's Web site at [www.iwla.org](http://www.iwla.org).



MAP COURTESY OF U.S. FOREST SERVICE

## 6. MAP YOUR WATERSHED.

Mapping your watershed can help you locate potential sources of pollution. Since water runs downhill, the lay of the land determines the size of your watershed. Try to determine the area of land sloping down to your stream. Contact the U.S. Geological Survey for topographic maps of your watershed. Your county environmental or planning office might also be able to produce a map of your watershed using Geographic Information System (GIS) software.

Knowing the boundary of your watershed is important because all land uses in the watershed affect the water quality. For example, if farming is a major activity in the area, your stream may suffer from an over-abundance of soil and nutrient pollution. If your stream is located in an urban environment with heavy development, it might suffer from excess sediment. By survey-

ing your stream and the surrounding area, you can determine the types of land uses in your watershed and indicate them on a map. This way, if you notice a change in water quality downstream, you can track possible sources upstream.

## 7. MONITOR STREAMS AND WETLANDS.

Use the League's biological stream-monitoring method to determine the water quality of a local stream. The League's method collects macroinvertebrate samples from monitoring stations every quarter of a mile along the stream. Monitoring data may be used to track changes in the water quality over time. Your state and local government agencies may accept your data to assess long-term water quality trends. For more information about the League's biological monitoring protocols, please review the factsheet "Stream Quality Survey Instructions" in this publication.

Use data forms and instructions from the Izaak Walton League's *Handbook for Wetlands Conservation and Sustainability* to record the vegetation, soils, hydrology, and wildlife in local wetlands. Use this record to track changes in wetland characteristics over time that may alert you to problems or changes in land use. These records also may be used in public hearings to illustrate the functions and values of the wetland that will be lost if a permit to change a wetland is granted. Stream and wetland monitoring information may be used to make land-use management decisions and to prioritize areas for restoration. For information on other wetland monitoring methods, contact the Izaak Walton League.

## 8. ENHANCE STREAM CORRIDORS AND WETLANDS.

Stream and wetland cleanups are easy projects that can help enhance both the beauty and quality of a waterway. Cleanup campaigns have many benefits, one of which is attracting publicity to get community members interested in watershed conservation efforts. Always get permission from landowners along the waterway if you plan to enter private property. Invite landowners and other community members to participate. Adding an educational component to the cleanup can address the sources of pollution and engage the community in future pollution prevention. More information on organizing cleanups and keeping volunteers safe can be found in the factsheets "*A Planner's Guide to Watershed Cleanups*" and "*Safety and Fun in Your Watershed*" in this publication.

Expand on cleanup efforts with other types of enhancement projects. Removing exotic invasive plant species can provide room for native plants to grow. Native plants are important because they provide food and habitat for wildlife. Planting buffers of vegetation around streams

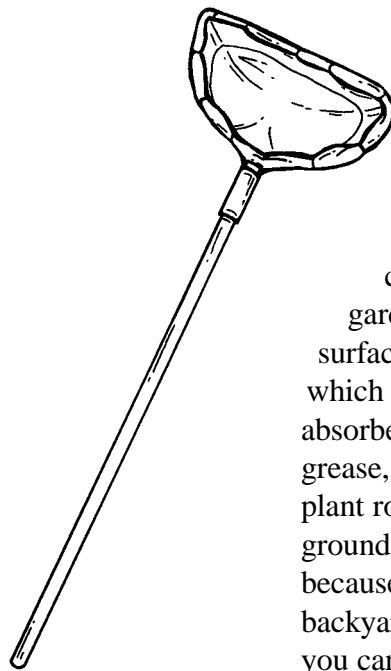
and wetlands improves wildlife habitat and water quality by filtering rain runoff. Buffers also prevent erosion because root systems stabilize streambanks, and they shade the water, lowering the temperature and allowing additional dissolved oxygen for fish, aquatic insects, and crustaceans. For more information on enhancement, please refer to the League's publication, *A Handbook for Stream Enhancement and Stewardship*.

## 9. PROMOTE STORMWATER SOLUTIONS AT HOME AND IN THE COMMUNITY

Incorporate water-saving and water-cleansing techniques at home such as rain barrels, rain gardens, and backyard wetlands. Invite neighbors to tour your yard, and let them know how they can become part of the solution to nonpoint source pollution in the community.

Rain barrels are large containers that collect and store rain from downspouts. The water can later be used for lawns and gardens. Rain gardens temporarily store rainwater from paved surfaces and downspouts in a low-lying garden area, which holds water for several hours until it is absorbed by the plants and soil. Fertilizers, pesticides, grease, and other pollutants are trapped by the soil and plant roots while the clean water trickles down into the groundwater. Homeowners benefit from rain gardens because they provide a colorful, low-maintenance backyard habitat. In addition to creating rain gardens, you can use native vegetation to transform soggy backyards into wetlands that further improve water quality and wildlife habitat.

Encourage your community to reduce nonpoint source pollution through conservation development. Conservation development relies on careful stewardship of the land and water to build livable communities. Often, conservation development involves grouping buildings close together in the least environmentally sensitive part of the site, while conserving the rest of the area as shared open space. Find out if the local regulations and ordinances support conservation development. If not, educate municipal officials and the community about how conservation development can improve water quality. Work with elected officials to pass zoning ordi-



nances that provide incentives to developers who design projects with conservation in mind.

Contact the Izaak Walton League for more information about rain barrels, rain gardens, backyard wetlands, and conservation development practices.

## **10. EDUCATE OTHERS.**

One of the best ways to get others involved in watershed stewardship is to teach a friend, neighbor, or school group about watershed conservation. Talk to local civic groups and explain the need for their involvement. You can also target a specific audience for your message. For example, work with local landowners to develop land-use strategies for water quality, such as planting buffer strips of vegetation along streambanks. Or, host a watershed festival to raise public awareness. To reach a broad audience, keep the media updated about your project. Suggest a story about your stream or wetland project, and ask the media to cover local events. Explain that the project benefits the local community since clean water means a safer, healthier, and more aesthetically pleasing environment for everyone. You can also write letters and op-eds to local newspapers. Keep copies of any media coverage for future use.

