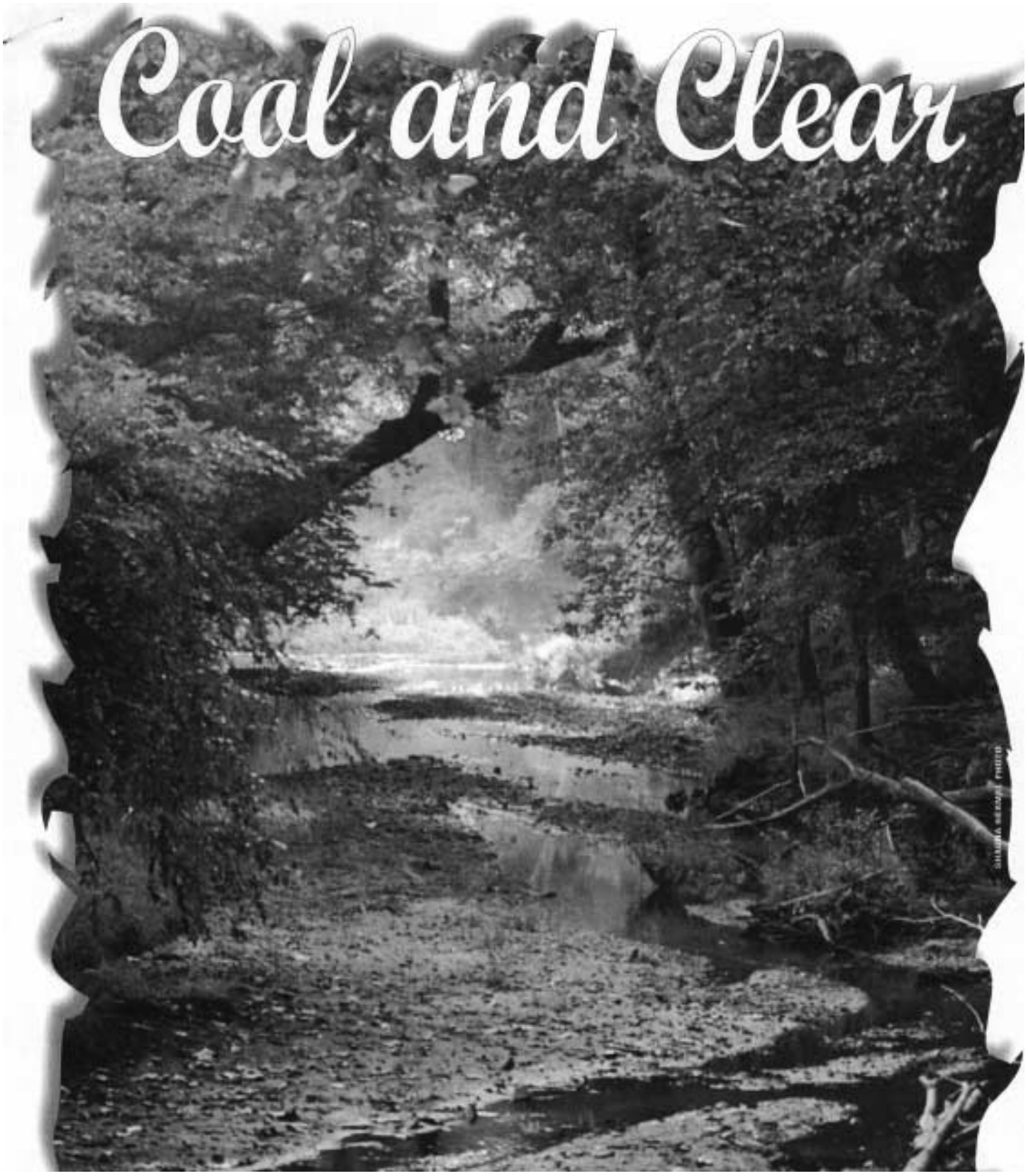
Cool and Clear



Tips to preserve and maintain water quality on your farm or ranch.

BY LORI GILMORE

President Clinton first announced his plan to protect the country's rivers and streams in the 1998 State of the Union address. The president's "national blueprint" builds on the Clean Water Act's goal of making all U.S. waters "fishable and swimmable." As outlined in the Clean Water Action Plan, voluntary water-quality improvement projects implemented on a watershed basis can help reduce urban and agricultural pollution.

Since water and agriculture go hand in hand, many believe the livestock industry, in particular, will enter the spotlight. This water-quality initiative brings to the forefront nonpoint-source contributors, including cow-calf operations. Based on this ambitious environmental and political proposal, industry experts advise farmers and ranchers, particularly those with land running along waterways, to become informed and begin taking necessary steps to manage and maintain nearby waters.

Quality water is vital to life. Farmers and ranchers, urban residents, recreationists and industries all rely on a safe supply Livestock and wildlife need an ample, fresh source for survival. Thankfully, in many areas of the country, natural and constructed surface waters are plentiful and usable. Flowing rivers, creeks and streams lace maps. Ponds, lakes and reservoirs dot the rural landscape. Nevertheless, degradation of this treasured natural resource is generating increasing political and environmental attention, creating pressure that could put an added squeeze on cow-calf businesses.

The U.S. Environmental Protection Agency (EPA) estimates more than half of all polluted water can be attributed to rural and urban runoff. In fact, EPA officials reported to House Agriculture Committee members earlier this year that more than 173,000 miles of waterways have been polluted with chemical, erosion andanimal-waste runoff. Often widespread and difficult to identify, this type of pollution is known as nonpoint-source pollution.

Easy points

For many of us, it's much easier to visualize the opposite: point-source polluters. Sewage treatment plants, factories, landfills and even livestock facilities are examples. Point sources, including feedlots, may release pollutants from one specific area and are already subjected to EPA regulations.

"While we have always had water-quality concerns from traditional pollutants, those being point-source, the spotlight is now focusing on nonpoint-source pollution; says George Gough, director of government relations for the California Cattlemen's Association.

Although not alone, agriculture is a major nonpoint-source contributor. We can credit soil and sediment running off the land after a heavy rainfall or snowmelt as chief culprits. Other nonpoint polluters are forestry, septic systems and other urban runoff sources such as construction, lawn care and parking lots.

Displaced sediment is agriculture's primary problem, but thermal pollution (water warmer than desired); fecal coliform bacteria, including E. coli; the *Cryptosporidium parvum* parasite; and excess nutrients, such as nitrates and phosphorous, also may affect water quality.

Even though nonpoint-source pollution is not regulated at this time, industry

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experts advise producers to make water issues more of a priority. The reason: to help diffuse possible regulatory, prescriptive measures that may lie ahead.

"We have a responsibility to determine how we are managing the land," says Tess Dennis, associate counsel for the California Farm Bureau Federation. "Are we doing it the most efficient way we can, while not impairing water quality?"

No doubt policy-makers and environmentalists will continue to apply pressure on agriculture. In fact, President Clinton's Clean Water Action Plan has intensified the debate in California, particularly for the state's cattlemen. According to Gough, California has 40 million acres of rangeland draining into two-thirds of the state's reservoirs. It is estimated 85% of California's water supply passes through the area.

"That really puts the cattle producer, whether he or she likes it or not, on the front line of water-quality discussions," Gough says.

While water-quality issues in other Western states might be similar to those in California, the pollutants of concern are not necessarily the same in Kansas, Wisconsin or even Florida. Consequently, each state has an agency responsible for setting water-quality and quantity standards. According to Gough, state regulations vary and in some cases are more stringent than federal water-quality laws.

The Natural Resources Conservation Service (NRCS) can provide technical assistance by offering environmentally sensible solutions. Cost-share assistance may be available.

Getting started

Karol Keppy, of the Conservation Technology Information Center (CTIC), encourages cow-calf producers to take steps toward improving water quality within their own areas. Keppy is responsible for the "Know Your Watershed" program, a nationwide campaign developed by CTIC promoting a local, voluntary approach for protecting the environment while at the same time considering farming and ranching profitability goals. The program encourages volunteer groups, consisting of anyone who has a stake in a watershed, to develop a water-quality improvement plan.

As good stewards, producers should protect their own businesses. "First, make sure your operation is 'clean,"' says Keppy. If a stream or lake runs through your property, she recommends voluntarily measuring water quality as it enters and leaves. "After taking those samples, if it is getting worse going through your land, you need to figure out why and rectify it."

To gather meaningful information, many watershed partnerships purchase equipment to monitor water quality and train landowners in proper measuring procedures. She says university Extension services, some state farm bureaus and local water suppliers offer water-quality testing services.

While telling producers they need to monitor water quality, she also supports confidentiality, According to Keppy, producers do not need to share the information with others until they are ready, and then, only the data they want to show.

Dennis agrees producers need to take a proactive position. According to this lawyer representing California Farm Bureau members, she says it could eventually become a legal matter. "The burden of proof may be on you to show that you are not the problem," she says. In addition to collecting data, she recommends gathering additional supporting evidence by taking photos of the area.

Cow-calf producers also can make a positive difference by implementing stewardship practices. Employing voluntary measures known as best management practices (BMPs), says Keppy, can help agriculture minimize the potential negative effect on water quality. Understanding that each scenario is unique, one or more of the following management tips may help preserve and maintain water quality on your farm or ranch.

1. Implement rotational grazing

"Thankfully many management practices are not only good for the environment but also are good from a profitability standpoint," says Keppy, "Rotational grazing has an economical benefit with water quality as the side benefit."

She says cow-calf producers can protect stream temperature and reduce sediment loads by implementing controlled grazing. However, an alternative water source is required with this BMP.

"Not only does this management practice protect water quality by reducing damage to the area adjacent to the stream or lake, it can also improve forage quality," adds Keppy. Better forages can ultimately improve cattle condition and gains.

2. Maintain the riparian area

Preserving the natural vegetation alongside a bank can minimize the amount of runoff reaching a stream. This area, known as the riparian zone, often serves as a buffer, filtering and trapping displaced sediment. If animals trample and damage plant life along the water's edge, the stream bank will erode, increasing the odds

sediment and agricultural chemicals will pollute the water.

The loss of trees and shrubs may result in higher water temperatures. As water temperature rises, particularly in cold-water fisheries, habitat will be disrupted. In this case, even though contaminants aren't dumped directly into the water, thermal pollution may have a serious effect on cold-water streams.

3. Provide adequate windbreak protection

"During winter months cattle can spend a lot of time along stream banks," says Joe Harner, Kansas State University agricultural engineering specialist. "Animals retreat to this area, typically covered with trees and brush, for shelter and windbreak protection." Likewise, in warmer conditions, cattle prefer the shade.

In order to maintain the stream bank, the herd must have additional areas for refuge. Harner suggests constructing a living or nonliving windbreak in an alternative site, preferably at least 200 feet from the water. This management practice encourages animals to move away from the delicate riparian zone.

4. Find an alternative feeding location

Too often, if the herd loafs near the watering source, the same area also becomes a convenient place to provide supplemental feed. "If the herd has food, water and shelter there, the question is, why leave it?" asks Harner.

To reduce the concentration of nutrients from animal waste and the potential for erosion, the K-State agricultural engineer suggests feeding in an area far from the surface water source. By offering supplemental feed in another location, you will force the animals to utilize the entire pasture.

5. Offer other watering options

If wind is no longer a threat and feed is delivered to an alternative spot, Harner says producers may still rely on the stream as a watering source. "However, if there is a lot of erosion and other stream-bank problems, such as vertical banks or steep slopes, then you also need to look at moving that watering site away," he says. This may require fencing off ponds and streams or utilizing a gravity-flow system to fill watering troughs. Placing a fence around a water body limits direct access to the water, helping lower bacteria levels and promoting vegetation growth along the bank.

According to Harner, agricultural engineers at K-State have designed a preferred-watering-site demonstration project. In this model, cattle can drink from the stream at a point where the bank is stabilized. As compared to fencing cattle out, this example allows animals to drink from the stream at a preferred site and then back out once finished. Since cattle are barred from entering the stream, this example helps control the sediment load and maintain the stream bank, says Harner. This low-cost model utilizes pipe fencing and barbed wire.

Harner cautions producers to check with their state water or parks and wildlife office to determine if a permit is needed to modify the stream bank.

6. Keep calves healthy

Young sickly animals can hinder water quality. A calf with scours more than likely will drop high levels of *E. coli* bacteria and *Cryptosporidium parvum*, says Keppy. Although the manure might not be dumped directly into the water, it may reach the surface water as runoff. If other animals are drinking the water, you could be spreading your trouble, warns Keppy.

Calves less than 4-6 weeks of age also tend to shed the parasite *Cryptosporidium parvum*. Since the parasite is typically found in calves more often than adult cattle, it is imperative to keep younger animals away from streams.

"The bottom line: Keep your calves as healthy as possible," Keppy says.

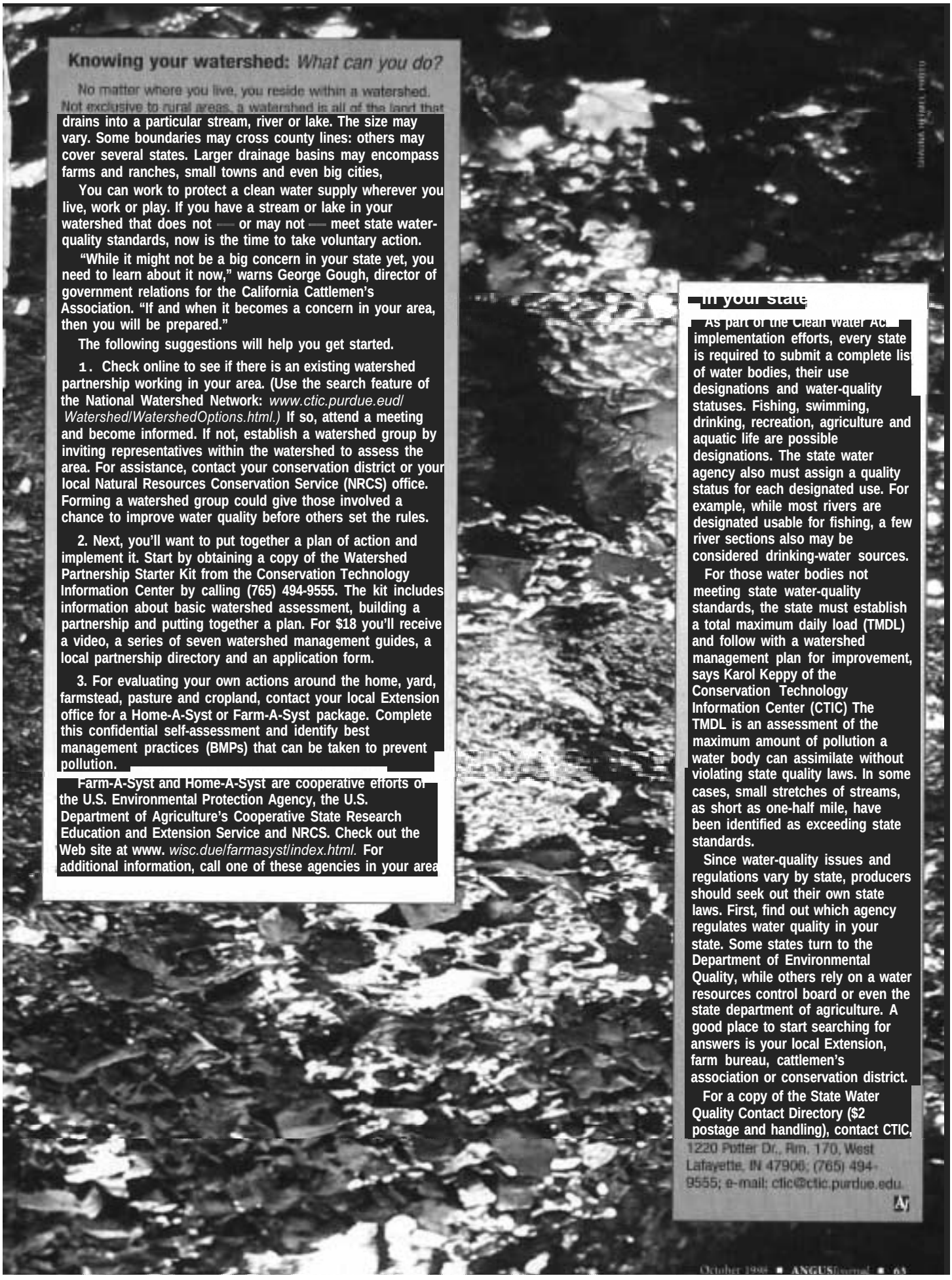
7. Seek assistance

Turn to local resources for assistance. The Natural Resources Conservation Service (NRCS) can provide technical assistance by offering environmentally sensible solutions. In some cases, cost-share assistance may be available.

Learn more through educational opportunities. Find out more about your state's water-quality issues through short courses. For example, the California Cattlemen's Association, Extension and the NRCS offer workshops for ranchers wanting to learn more about water-quality issues and management practices to protect their operations.

As stewards of the land, we all have a responsibility to protect our natural resources. Be prepared before fingers point to you. Cow-calf producers will play a greater role in warding off future regulatory actions. Now is the time to become informed of water-quality issues and start voluntarily working with your neighbors to ensure a safe supply for the next millennium.

In Kansas State University's preferred-watering-site demonstration project, cattle can drink from the stream but aren't allowed to enter. One drawback, says Joe Harner, is the cattle seem to feel trapped in the watering site and spook more easily.



Knowing your watershed: *What can you do?*

No matter where you live, you reside within a watershed. Not exclusive to rural areas, a watershed is all of the land that drains into a particular stream, river or lake. The size may vary. Some boundaries may cross county lines: others may cover several states. Larger drainage basins may encompass farms and ranches, small towns and even big cities,

You can work to protect a clean water supply wherever you live, work or play. If you have a stream or lake in your watershed that does not — or may not — meet state water-quality standards, now is the time to take voluntary action.

"While it might not be a big concern in your state yet, you need to learn about it now," warns George Gough, director of government relations for the California Cattlemen's Association. "If and when it becomes a concern in your area, then you will be prepared."

The following suggestions will help you get started.

1. Check online to see if there is an existing watershed partnership working in your area. (Use the search feature of the National Watershed Network: *www.ctic.purdue.eud/Watershed/WatershedOptions.html.)* If so, attend a meeting and become informed. If not, establish a watershed group by inviting representatives within the watershed to assess the area. For assistance, contact your conservation district or your local Natural Resources Conservation Service (NRCS) office. Forming a watershed group could give those involved a chance to improve water quality before others set the rules.

2. Next, you'll want to put together a plan of action and implement it. Start by obtaining a copy of the Watershed Partnership Starter Kit from the Conservation Technology Information Center by calling (765) 494-9555. The kit includes information about basic watershed assessment, building a partnership and putting together a plan. For $18 you'll receive a video, a series of seven watershed management guides, a local partnership directory and an application form.

3. For evaluating your own actions around the home, yard, farmstead, pasture and cropland, contact your local Extension office for a Home-A-Syst or Farm-A-Syst package. Complete this confidential self-assessment and identify best management practices (BMPs) that can be taken to prevent pollution.

Farm-A-Syst and Home-A-Syst are cooperative efforts of the U.S. Environmental Protection Agency, the U.S. Department of Agriculture's Cooperative State Research Education and Extension Service and NRCS. Check out the Web site at www. *wisc.due/farmasyst/index.html.* For additional information, call one of these agencies in your area

In your state

As part of the Clean Water Act implementation efforts, every state is required to submit a complete list of water bodies, their use designations and water-quality statuses. Fishing, swimming, drinking, recreation, agriculture and aquatic life are possible designations. The state water agency also must assign a quality status for each designated use. For example, while most rivers are designated usable for fishing, a few river sections also may be considered drinking-water sources.

For those water bodies not meeting state water-quality standards, the state must establish a total maximum daily load (TMDL) and follow with a watershed management plan for improvement, says Karol Keppy of the Conservation Technology Information Center (CTIC) The TMDL is an assessment of the maximum amount of pollution a water body can assimilate without violating state quality laws. In some cases, small stretches of streams, as short as one-half mile, have been identified as exceeding state standards.

Since water-quality issues and regulations vary by state, producers should seek out their own state laws. First, find out which agency regulates water quality in your state. Some states turn to the Department of Environmental Quality, while others rely on a water resources control board or even the state department of agriculture. A good place to start searching for answers is your local Extension, farm bureau, cattlemen's association or conservation district.

For a copy of the State Water Quality Contact Directory ($2 postage and handling), contact CTIC, 1220 Potter Dr., Rm. 170, West Lafayette, IN 47906; (765) 494-9555; e-mail: ctic@ctic.purdue.edu.