Second Edition

The Clean Water Act

Owner's Manual

River Network

Foreword by **Jimmy Carter**

The Clean Water Act
Owner's Manual
2nd Edition

River Network
Connecting People, Saving Rivers

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The author would like to thank her River Network colleagues and her husband for supporting her during the production of the 2nd edition.

How to use this book...

Welcome to River Network's second edition of The Clean Water Act Owner's Manual!

Are you curious about the Clean Water Act and what it means? Did someone recommend that you use the Clean Water Act to solve a problem in your community? Have you heard about a particular section of the Clean Water Act that you want to use to protect your watershed? No matter what you need to know, we believe that this book can provide answers and tools to help you.

We want this book to be as useful as possible so please take a few moments with these introductory pages to learn how to use it.

The first eight chapters discuss key Clean Water Act provisions, or tools, that citizens will find most useful. In each, you'll find a main text that explains specifically how the law works in **question and answer** format.

There are several types of sidebars, explained in the "Quick Reference" section (sidebar p.5).

At the end of each chapter (and at the end of some sections) you will find an **"Action Checklist"** that summarizes step-by-step how you can apply each CWA provision, and a **"Local Story"** that illustrates how citizens used the tools laid out in the chapter to make a difference in their watershed.

We strongly recommend you begin with the first two chapters, Water Quality Standards and NPDES permits. These tools are the basis for so many of the other tools that we start all workshops, whether it is a workshop on stormwater permits, watershed restoration plans or wetland protection, with at least a brief overview of them. Once you learn these fundamentals, you'll be able to use them to address many issues.

You may then choose to keep reading straight through the book or to go directly to specific CWA provisions that will help you to solve your water quality problem. *Chapter 9, Solving Problems*, offers very brief suggestions about which tools to use (both Clean Water Act and other laws) to address several problems. Review the Table of Contents to find the most relevant pages in Chapter 9. For each topic, there is a brief overview of the issues and a synopsis of which CWA tools might best address the problem. From there, you can return to the chapters for more detail on specific tools. For example, if stormwater pollution is the big problem you face, read the suggestions in Chapter 9 and then refer back to the referenced chapters on NPDES permits (Chapter 3) and impaired waters (Chapter 4). Chapter 9 also describes how other environmental laws might work in conjunction with the Clean Water Act to help solve your problem. These other laws are further explained in *Chapter 10: Other Laws to Protect Your Watershed.*

Please don't be scared off by a term you don't understand in *Chapter 9: Solving Problems*. It is meant to be a quick reference to direct you back to relevant chapters. Every suggestion in Chapter 9 is explained in more detail elsewhere in the book.

Finally, in Chapter 11, you will find helpful resources for additional information and, at the very end of the book, a glossary of terms.

Without community attention to local waters, full protection of the uses and values is not achieved. Today, with limited resources at the local, state and federal levels, and political pressures to weaken CWA protections, most implementation and enforcement of the Clean Water Act is "complaint-driven." Concerned citizens are THE driving force behind the Act. Together we must build a strong team of locally involved citizens who can offer information and ideas proactively and who can insist on enforcement of required protections. At no time since the Clean Water Act was passed in 1972 has our vigilance been so important. We must rise to the challenge and implement the vision of this law - to restore and maintain the chemical, physical and biological integrity of the nation's waters. ■

Quick Reference:

A key to icons used in this book

For direct references to language from the Clean Water Act and the federal regulations that implement the Act.

For background and details on a particular topic.

For historical background on particular tools.

For other resources on specific topics.

For public involvement and action opportunities to protect your watershed.

For concrete examples of how the Clean Water Act has been put to work.

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Rick Diamond

Former U.S. President Jimmy Carter

A Foreword by Jimmy Carter

Clean water is a basic human right. Without it, the other rights may not even matter. Human societies cannot be healthy, prosperous and just without adequate supplies of clean water. What could be a more basic right than clean water?

It has been said that we are what we eat, but it might be more accurate to say that we are what we drink. Our bodies are 70% water; our brains are 95% water. Human beings can survive up to a month without food but not more than a few days without water.

In 1972, when Congress passed the Clean Water Act, I was serving as Governor of Georgia. I understood the importance of water issues and already had stopped a number of misguided water development projects within the state. I saw the passage of the Clean Water Act as an important step forward in protecting and restoring the health of our nation's rivers.

The United States has not always set the best examples in terms of water resource protection and management. In fact, over the past 200 years we have degraded thousands of rivers, lakes and streams to the point that they are no longer capable of supporting their native life or the basic uses humans expect of them.

However, the United States has set some very important and very good examples. Of these, none has been more important than the passage of the Clean Water Act.

Prior to the passage of this landmark legislation, our national water pollution control policy had been based on the belief that pollution was a necessary evil – an inevitable byproduct of economic development. Many assumed that to be more prosperous, we simply had to put up with more pollution. (If it were as simple as that, the most polluted places would also be the most prosperous. This has never been true, and never will be.)

Until 1972, each state was left to determine how best to "balance" pollution control with other concerns. There were no minimum discharge standards that applied across the nation. Consequently, some polluting industries would "shop" across state lines for the most lenient discharge standards they could find. Some states would actually compete for these industries by lowering their standards, while others cried out for a more level playing field. All eleven paper pulp mill owners threatened to leave Georgia unless I agreed to relax our standards, but they backed down when we were resolute.

This poor system initiated and perpetuated a race to the bottom – and led inevitably to the appalling water quality problems of the 1960s. Thousands of waters, including most of those in populous or heavily industrialized areas, were unfit for human contact and unable to support their native life. When Ohio's Cuyahoga River actually caught fire in Cleveland in the summer of 1969, a transfixed nation asked how this could be possible, less than a month from the day we took our first steps on the moon.

Many communities burdened with the "necessary byproduct of economic progress" saw their economies grind to a halt. And many polluted communities experienced public health problems that no amount of economic progress could have justified.

The American people demanded action. Congress responded in 1972 by overhauling the nation's water pollution control law with enough bipartisan strength to override the anticipated presidential veto. The new law stood the old, flawed policy on its head.

The premise underlying the Clean Water Act was that pollution by definition was harmful. From 1972 forward, new pollution was to be avoided wherever possible and minimized in any case. Existing water pollution was to be identified and reduced as quickly as possible, and then steadily reduced further over time. Direct pollution discharges were simply illegal unless enforceable permits regulated their concentrations and amounts. Industrial and municipal sewage discharges were subject to new national standards. "Fishable/swimmable" water quality was to be protected where it already existed, and was to be attained as quickly as possible wherever else it was achievable. In the realm of environmental quality and human health, these were notions as important – and as revolutionary for their time – as those underlying the Declaration of Independence, the Constitution or the Emancipation Proclamation.

In the next few years, including those during which I served as President, we took the first major steps in the right direction. We made tremendous progress in reducing existing direct industrial and municipal sources of pollution. Many streams and lakes that had been unfit for swimming, fishing or drinking were restored. The economic benefits alone were incalculable. They continue to accrue to this day, because many waters that had been liabilities to their communities quickly became tremendous assets.

Still, however, the ultimate goals of the Clean Water Act remain distant. Because not all of the Act's provisions have been faithfully implemented, new pollution has simply replaced old pollution in many waters. At least as troubling, many formerly high quality waters have been degraded and are unfit for swimming, fishing or drinking. Even more waters fail to support their full ecological functions.

The Clean Water Act, in and of itself, doesn't ensure clean water any more than the Civil Rights Act guarantees full civil rights. Both depend on federal and state governments committed to them. Even more importantly, both depend on an informed, involved, committed and courageous citizenry. When people don't speak up and organize for clean water, it cannot be guaranteed – even by the most progressive state and federal agencies working under the most enlightened administrations.

The Clean Water Act's provisions for public involvement are arguably its most important. They offer a clear framework for direct citizen involvement in nearly all important water quality decisions, including a state's general minimum standards, goals for every waterbody, limits on existing effluents, and whether and how to allow new discharges. In fact, there may be no law in any land that allows such a degree of state and local public involvement in its interpretation and implementation – or that depends so completely on it. Each American can and should have a say in how goals and limits are set for waters in their area.

The Clean Water Act's provisions for public involvement are arguably its most important.

This "Owner's Manual" is our guide to personal involvement in the most important decisions about our rivers, streams, wetlands, lakes and estuaries.

That is where this handbook comes in. There are other manuals for lawyers, scientists and regulators. This one is for people like you and me – people who care enough about their waters to take personal action to protect and restore them. You and I own our waters, and we own the Clean Water Act. This "Owner's Manual" is our guide to personal involvement in the most important decisions about our rivers, streams, wetlands, lakes and estuaries.

River Network is performing a vital service by updating, re-publishing and continuing to distribute this important handbook. For over seventeen years, this national non-profit organization has been helping citizens organize to protect rivers and their watersheds. River Network cooperates with hundreds of grassroots organizations around the country to improve the quantity and quality of freshwater that supports all life. The women and men who make up these groups are the unsung heroes of America's rivers. I salute them and River Network for their work, their courage and their sacrifice.

This handbook illustrates the sections of the Clean Water Act that are most effective in dealing with the particular problems river protectors face in each region of our country. It presents actual case studies that show how the Act can be used successfully. Most importantly, it extracts from thousands of pages of complex rules and regulations the simple things each of us can do to advocate successfully for cleaner water.

During my term as President of the United States, we nearly doubled the size of the federal Wild and Scenic River System. We were able to slow down, if not halt completely, the destructive trend in building inappropriate dams and other water development projects harmful to the health of rivers. Just as importantly, we made tremendous progress in addressing our pollution problems under the framework of the still-young Clean Water Act.

I left the presidency as I had entered it, with a deep love for flowing waters. I also re-entered private life with a greater understanding of the necessity for direct citizen action and participation in our environmental conservation efforts.

Please read this manual carefully. Please get involved in making the Clean Water Act work properly in your area. And please promote river conservation by supporting the local, state and national organizations of your choice.

Jimmy Carter served as Governor of Georgia from 1971 to 1975, and as the thirty-ninth President of the United States from 1977 to 1981. Since 1981 he and his wife Rosalynn have worked tirelessly for peace, democracy, human rights, and economic and social development. In 2002 he was awarded the Nobel Peace prize.

Introduction

By Don Elder

The Clean Water Act is by far the United States' most comprehensive water law. Based on broad, visionary goals for safeguarding human health and ecological integrity, the Act applies to rivers, streams, lakes, wetlands and estuaries alike. Requiring protection for waters that are clean and restoration for waters that are impaired, it provides a strong system for stopping and preventing pollution. Establishing standards and goals for each waterbody, it provides a framework for identifying and addressing most of the problems that affect our waters.

While not perfect and certainly not a panacea, the Clean Water Act is the most powerful tool we have to solve our water quality problems. Everyone working on water issues should understand this law's fundamentals.

The single most important thing they all should know is that **the Clean Water Act depends on public involvement.** In fact, it would be impossible for even the most progressive state agencies and the most committed public officials to do their jobs well without the information and support that the public can provide. For this reason, you and I have not just the opportunity but the responsibility to ensure that this law works properly to protect the health of our home waters.

The Clean Water Act provides many opportunities for citizens to get involved. We can influence decisions about the standards set by each state for ecological integrity, pollution control and public health. We can also be involved in decisions about the specific standards set for waters in our area and about the limits for any new sources of pollution that might be allowed. By monitoring activities, conditions and trends in each watershed and providing information to state officials, we can influence state priorities for research, enforcement and spending. By pinpointing problems and their sources, we can direct the attention of our state agencies to the situations that need it most. Last but not least, by becoming involved in ongoing CWA state and basin planning processes, we can help develop effective strategies and programs for the long-term protection and restoration of our waterways.

While the Clean Water Act gives all U.S. citizens important rights and responsibilities, it is not very user-friendly. The provisions that matter most to people like you and me are scattered through hundreds of small-print pages of the law and its supporting regulations and guidance documents.

This manual was first published by River Network in 1999 to provide a plain-language guide to the Act's most important provisions. Please read this new, updated version and get involved today. I promise that you will be glad you did.

Tim Jewett/Portland Tribune

River Network President, Don Elder

Evolution of the Clean Water Act

1899 **Rivers and Harbors Act of 1899** (a.k.a., Refuse Act) - prohibit dumping into navigable waters, control-at-the-source

1948 **Federal Water Pollution Control Act** - waste disposal was fundamental use of water; primary responsibility with states; narrower jurisdiction - only interstate waters (broadly applied but narrower than all navigable); abatement lawsuits only when danger to health or welfare of persons in a different state from the discharge; state could veto federal lawsuits

1956 **Act of July 9, 1956** - definition of interstate waters narrowed; more delay added to administrative process

1961 **Federal Water Pollution Control Amendments of 1961** - interstate waters again broadened to 1948 definition; federal authority expanded to address pollution affecting those within *same* state as the discharge; still no effective federal enforcement mechanism

1965 **Water Quality Act of 1965** - water quality standards introduced; protection no longer tied only to public health and welfare

1966 **Clean Water Restoration Act of 1966** - mandatory reporting requirements for discharges; civil penalties for noncompliance

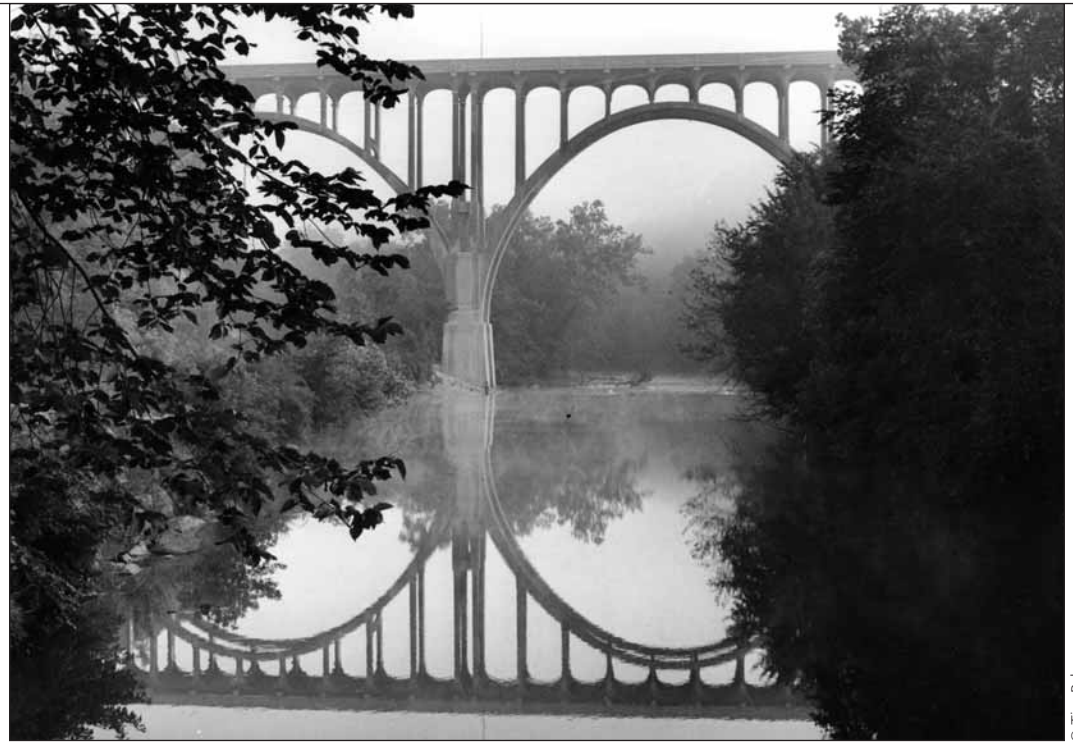
1970 **1970 Water Quality Improvement Act** - nationally uniform control strategy; oil pollution included with national spill contingency plan and revolving fund; civil and criminal penalties for past acts of pollution; control of hazardous substances; federal licensing for discharges required compliance with water quality standards

1972 **Federal Water Pollution Control Act Amendments of 1972** (a.k.a., Clean Water Act) - established basic structure for regulating pollutant discharges; gave EPA authority to implement pollution control programs; reinforced water quality standards requirements; funded sewage treatment plant construction; addressed nonpoint source pollution

1977 **Clean Water Act Amendments of 1977** - "midcourse corrections;" increase emphasis on control of toxic pollutants

1987 **Water Quality Act of 1987** - changed grants to state revolving loan programs; antibacksliding, nonpoint source production management, administrative penalties and expanded judicial review

SOURCES:
Fogarty, John P.C., "A Short History of Federal Water Pollution Control Law," 1991 Clean Water Deskbook, The Environmental Law Reporter, 1991.
Liebesman, Lawrence R., and Laws, Elliot P, "The Water Quality Act of 1987: A Major Step in Assuring the Quality of the Nation's Waters," 1991 Clean Water Deskbook, The Environmental Law Reporter, 1991.



Cuyahoga River near Cleveland, Ohio.

Goals of the Clean Water Act

Clean water is everyone's business. Everyone needs it. Almost all Americans say they're willing to change habits and pay more, if necessary, to get it. An overwhelming majority of us support the Clean Water Act as strongly as any law. Increasing numbers of citizens are interested in making more effective use of it, in conjunction with other practical tools, in our efforts to protect our local waters.

You don't need to be an expert on the Clean Water Act to make good use of it. Keeping in mind a few basic ideas, understanding a few key principles, and remembering a few important facts is enough.

The Clean Water Act begins with a set of goals and policies that are the basis for the entire law. Referring to these goals in your work to protect waters can be very powerful and influential. The overarching objective is:

To restore and maintain the chemical, physical and biological integrity of the nation's waters.

In order to get to that end result, Congress developed more specific goals and policies that the Nation could strive toward first.

Interim goals:

- Eliminate discharge of pollutants into the navigable waters by 1985.
- Achieve water quality which provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water by July 1, 1983.

Policies:

- Prohibit the discharge of toxic pollutants in toxic amounts.
- Provide financial assistance for public wastewater treatment.
- Develop areawide waste treatment management plans.
- Invest in technology sufficiently to result in elimination of discharges.
- Develop and implement programs for the control of nonpoint sources of pollution in an expeditious manner.

Clean Water Act programs have been developed at the federal and state levels to meet these goals. These programs are implemented primarily at the state level. The Act requires both federal and state governments to allow, encourage and assist interested citizens to be involved in policy and program decisions. In general, the greater the public involvement, the better these decisions have been and will be.

For a copy of the Clean Water Act, go to http://www.eps/gov/r5water/cwa.htm

Goals and Policy of the Act

Restoration and Maintenance of Integrity

"The objective of this chapter is to **restore and maintain the chemical, physical, and biological integrity of the Nation's waters.** In order to achieve this objective it is hereby declared that, consistent with the provisions of this chapter -

(1) it is the national goal that the **discharge of pollutants into the navigable waters be eliminated** by 1985;

(2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the **protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water** be achieved by July 1, 1983;

(3) it is the national policy that the discharge **of toxic pollutants in toxic amounts be prohibited**;

(4) it is the national policy that **Federal financial assistance be provided to construct publicly owned waste treatment works**;

(5) it is the national policy that **areawide waste treatment management planning processes be developed and implemented** to assure adequate control of sources of pollutants in each State;

(6) it is the national policy that a **major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and the oceans**; and

(7) it is the national policy that **programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner** so as to enable the goals of this chapter to be met through the control of both point and nonpoint sources of pollution." (CWA, Section 101(a))

Public Participation

"Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this chapter shall be provided for, encouraged, and assisted by the Administrator and the States. The Administrator, in cooperation with the States, shall develop and publish regulations specifying minimum guidelines for public participation in such processes." (CWA, Section 101(e))

We often refer to a particular section of the 1972 Clean Water Act yet, once the Act was incorporated into federal law, the reference numbers changed. Here is a table to explain the relationship between what we say and correct legal reference.

Title	Section	Description	33 U.S.Code
I		**Research and Related Programs**	
	101	Congressional Declaration of Goals and Policy	1251
	102	Comprehensive Programs for Water Pollution Control	1252
	106	Grants for Pollution Control Programs	1256
II		**Grants for Construction of Treatment Works**	
	201	Purpose	1281
	208	Areawide Waste Treatment Management	1288
	209	Basin Planning	1289
III		**Standards and Enforcement**	
	301	Effluent Limitations	1311
	302	Water Quality Related Effluent Limitations	1312
	303	Water Quality Standards and Implementation Plans	1313
	304	Information and Guidelines	1314
	305	Water Quality Inventory	1315
	307	Toxic and Pretreatment Effluent Standards	1317
	312	Marine Sanitation Devices	1322
	313	Federal Facilities Pollution Control	1323
	314	Clean Lakes	1324
	319	Nonpoint Source Management Program	1329
IV		**Permits and Licenses**	
	401	State Certification	1341
	402	National Pollutant Discharge Elimination System	1342
	403	Ocean Discharge Criteria	1343
	404	Permits for Dredged or Fill Material	1344
V		**General Provisions**	
	505	Citizen Suits	1365
	518	Indian Tribes	1377
VI		**State Water Pollution Control Revolving Funds**	
	601	Grants to States for Establishment of Revolving Funds	1381
	603	Water Pollution Control Revolving Loan Funds	1383
	606	Audits, Reports and Fiscal Controls: Intended Use Plan	1386

Legislative debate after President Nixon's veto

Support for the Clean Water Act was widespread and bipartisan.

"Can we afford clean water? Can we afford rivers and lakes and streams and oceans which continue to make possible life on this planet? Can we afford life itself? Those questions were never asked as we destroyed the waters of our Nation, and they deserve no answers as we finally move to restore and renew them. These questions answer themselves. And those who say that raising the amounts of money called for in this legislation may require higher taxes, or that spending this much money may contribute to inflation simply do not understand...this crisis."

Senator Ed Muskie, Maine (D)

" I believe that the [act] is far and away the most significant and promising piece of environmental legislation ever enacted by Congress... of course such an ambitious program will cost money - public money and private money. The bill vetoed by the President strikes a fair and reasonable balance between financial investment and environmental quality... If we cannot swim in our lakes and rivers, if we cannot breathe the air God has given us, what other comforts can life offer us?"

Senator Howard Baker, Tennessee (R)

Source: Adler, Robert W., Jessica C. Landman and Diane M. Cameron. *The Clean Water Act: 20 Years Later*, Island Press, 1993.

Chapter 1

Setting Watershed Goals: Water Quality Standards

Purpose of Water Quality Standards

"A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States adopt water quality standards to protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act… [which]…means that water quality standards should, wherever attainable, provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water and take into consideration their use and value of public water supplies, propagation of fish, shellfish, and wildlife, recreation in and on the water, and agricultural, industrial, and other purposes including navigation."

(40CFR131.2)

River Network

© Tim Palmer

Headwaters of the Rogue River, Oregon

Setting Watershed Goals: Water Quality Standards

Under the Clean Water Act, states are required to establish water quality standards that define the goals and pollution limits for all waters within their jurisdictions. Water quality standards give the Act much of its meaning — and its force. Water quality standards also signal the need for quality-based discharge permits that states and EPA issue to polluters (Chapter 2). They determine which healthy waters need protection, which waters must be restored and how much they must be restored. Consequently, they set a course for restoring and protecting a watershed over the long term. Understanding water quality standards will help you apply all parts of the Clean Water Act to improve the health of your watershed.

In states where water quality standards are strong, they act as a powerful force to prevent pollution and improve water quality. In states where water quality standards are weak, they may offer little or no defense at all.

Standards are water body-specific. In other words, different standards may be assigned to different water bodies depending on how those water bodies are used. If your state water quality agency doesn't properly assign the standards for your river, stream, lake, wetland or estuary, your work to protect or restore it will be harder than necessary.

In fact, some of your tasks may be next to impossible without aquatic standards, because in watersheds where standards are weak, harmful activities can be perfectly legal. This is why it's important to address weak standards in your watershed before specific harmful activities are proposed.

At first glance, water quality standards may seem to be of interest only to scientists, bureaucrats and policy analysts, but water quality standards can be a matter of life or death for each and every stream. Nearly every Clean Water Act provision depends on them.

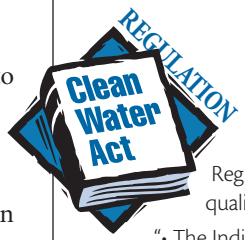
What are the major components of water quality standards?

In establishing water quality standards, states must take three major, interrelated actions. They must 1) designate uses (such as swimming or fishing); 2) establish water quality criteria (such as the maximum levels of bacteria allowed); and 3) develop and implement antidegradation policies and procedures.

Designated Uses	Water Quality Criteria	Antidegradation Policy
DESIGNATED USES are human uses and ecological conditions that are officially recognized and protected. States must designate one or more uses for each water body.	WATER QUALITY CRITERIA are descriptions of the conditions considered necessary to protect each designated use.	ANTIDEGRADATION POLICY is a required process for protecting all existing uses, keeping healthy waters healthy and giving strict protection to outstanding waters.

State implementation and enforcement of these three interrelated components of the Clean Water Act is fundamental to the nation's clean water system.

States may also establish other water quality policies and rules to implement their standards. One example — mixing zone rules — is addressed in Chapter 3 (p. 61). It is important to understand your state's mixing zone rules because they undermine water quality protection.



Tribal Water Quality Standards Programs

Regional EPA offices may accept and approve tribal water quality standards program if:

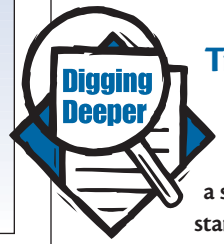
"• The Indian Tribe is recognized by the Secretary of the Interior and meets definitions for Indian Reservation and Indian Tribe,

• The Indian Tribe has a governing body carrying out substantial governmental duties and powers,

• The water quality standards program pertains to the management and protection of the water resources which are within the borders of the Indian reservation and held by the Indian Tribe, within the borders of the Indian reservation and held by the United States in trust for Indians, within the borders of the Indian reservation and held by a member of the Indian Tribe if such property interest is subject to a trust restriction on alienation, or otherwise within the borders of the Indian reservation, and

• The Indian Tribe is reasonably expected to be capable… of carrying out the functions of an effective water quality standards program in a manner consistent with the terms and purposes of the Act and applicable regulations."

(40CFR131.8(a))



Tribal Standards and EPA Process

Dozens of tribes have developed and adopted water quality standards that apply on their lands. EPA has a specific process for approving tribal water quality standards, but not all tribes have chosen to pursue EPA approval. Contact the tribal governments near you to find out whether they have developed and approved water quality standards. Whenever possible, work with tribes that are in your watershed or in your region. It can be a mutually beneficial alliance!

You can view all the EPA-approved tribal water quality standards at http://www.epa.gov/waterscience/standards/wqslibrary/tribes.html.

Who is responsible for water quality standards?

All fifty states, the District of Columbia, the U.S. Territories, and a growing number of Native American tribes have been authorized to administer water quality standards programs. In Clean Water Act parlance, and thus in this chapter, the term "states" is commonly used as shorthand to refer to all these political entities.

In some states, water quality standards are adopted by the state legislative body and signed into law by the governor. In other states, standards are adopted through an administrative agency's rulemaking procedures. For Native American tribes, the governing tribal body or authority is responsible for adopting water quality standards. The adopted standards may be submitted to EPA in order to receive federal authority to implement them. Tribal water quality standards may exist even if they have not been formally approved by EPA.

The Clean Water Act requires regional EPA offices to approve or disapprove state water quality standards based on five factors:

1) The designated uses are consistent with CWA requirements (p. 19).

2) The water quality criteria are protective of designated uses (p. 26).

3) Legal procedures for revising or adopting standards are followed.

4) Appropriate technical and scientific data and analyses are used to support any standards that do not include aquatic life and recreation uses.

5) Submission requirements are met.

(40CFR131.5(a))

Regional EPA offices must disapprove (and may promulgate other) standards if they do not meet these five factors. All EPA-promulgated state standards can be found at 40CFR131.31-38. (40CFR131.5(b))

Can the public play a role?

Fortunately, the Clean Water Act allows citizens to play a significant role in getting standards right by requiring states to provide regular opportunities for public involvement. Interested citizens have the right and responsibility to weigh in regularly on water quality standards issues in their state. The public involvement procedures that apply to all water quality standards are described at the end of this chapter (p. 45).

The Act also requires the EPA to oversee each state's water quality standards decisions and public involvement processes. The EPA must step in if state standards do not meet minimum requirements or if states fail to involve the public in all the necessary ways. One of the key ways that citizens can help assure proper water quality standards is to inform EPA about existing and emerging water quality issues.

River Network Collection

Salvada River, South Carolina

Designated Uses

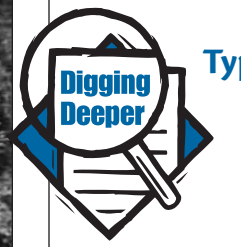
What are "designated uses?"

After Congress passed the Clean Water Act, states were required to designate uses for each waterbody. The designated uses for each state may be general, such as recreation and aquatic life, or they can be more specific, such as swimming and cold water fishery.

Designated uses are human uses and ecological conditions that states recognize offically in their water quality standards. States must designate one or more uses for each water body.

A water body's designated uses must fully represent existing and potential uses. Not every existing use of a water must be individually designated, but the designated uses must be broad enough and require strong enough protections for all existing uses.

A state's designated uses must include recreation and aquatic life. (40CFR131.10(a)) States may also designate other human uses such as fish consumption, shellfish harvesting and drinking water supply.



Typical Designated Uses

- Public water supplies
- Protection and propagation of fish, shellfish and wildlife (Aquatic Life/Wildlife/Habitat/Biological Integrity)
- Recreation
- Agriculture
- Industry
- Navigation
- Other: coral reef preservation, marinas, groundwater recharge, aquifer protection, hydroelectric power

(CWA, Section 303(c)(2)(A), 40CFR131.10(a), WQS Handbook, 2.1.6)

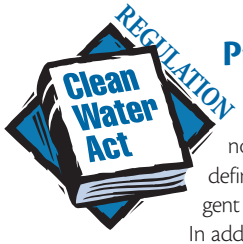
In addition, states have designated aesthetic, cultural and ceremonial uses as well as several subcategories of the above such as cold water fisheries, swimming or aquaculture.

Existing and Designated Uses

"**Existing uses** are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards."

"**Designated uses** are those uses specified in water quality standards for each water body or segment whether or not they are being attained."

(40CFR131.3(e-f))

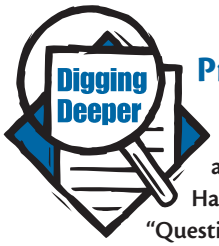


Protection of Existing Uses

CWA regulations at 40 CFR131.10(h) state "States may not remove designated uses if...they are existing uses, as defined in Section 131.3, unless a use requiring more stringent criteria is added."

In addition, the antidegradation policy states flatly that "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."

(40CFR131.12(a)(1), see p. 35)



Protecting "Aquatic life"

The EPA gives special emphasis to protecting aquatic life in its Water Quality Standards Handbook (August 1994) and its publication "Questions and Answers on Antidegradation" (December 1983).

> **"Water quality should be such that it results in *no mortality and no significant growth or reproductive impairment of resident species...* Any lowering of water quality below this full level of protection is not allowed ...The fact that sport or commercial fish are not present does not mean that the water may not be supporting an aquatic life protection function. *An existing aquatic community composed entirely of invertebrates and plants, such as may be found in a pristine alpine tributary stream, should still be protected whether or not such a stream supports a fishery."***

What is the difference between an "existing" and a "designated" use?

The Clean Water Act makes an important distinction between "existing" and "designated" uses.

Existing uses are 1) those that have occurred at any time since 1975, when the CWA regulations regarding use designation were established, regardless of whether they have been designated (40CFR131.3(e)), and 2) uses for which the necessary quality has been attained, whether or not the use is being made (*WQS Handbook*, 4.4). For example, if a river's water quality is good enough for swimming, it is an existing use even if people don't engage in it.

Designated uses are those uses that have been officially recognized by the state in water quality standards, whether or not they are being attained (40CFR131.3(f)). Not every existing use needs to be listed as a designated use, but all existing uses must be protected by the designated uses. For example, if people swim and boat in a water body, designating that waterbody for swimming may be sufficient to protect the water quality for both existing uses. If water bodies are being used for purposes that require better water quality than the current designated uses require then "the state shall revise its standards to reflect the uses actually being attained" (40CFR131.10(i)).

Does the designation of one use prohibit another?

Water bodies are often designated for several uses. Uses that don't require high water quality (such as navigation) and uses that have water quality impacts (such as industry or agriculture) may be designated. Under the Clean Water Act, however, a stream cannot be designated to receive and carry away pollutants because the Act was specifically drafted to control such activities, not protect them. (40CFR131.10(a), sidebar at right).

In other words, the designation of a use does not imply a license to degrade water quality. In water bodies with several uses, the level of quality necessary to support the most sensitive designated and existing uses must be maintained.

Are uses designated throughout entire water bodies?

In most states, larger water bodies are divided into discrete segments, each assigned its own designated uses and water quality criteria. Theoretically, these segments can be of any length or size but, ideally, they should reflect shifts in use and necessary levels of protection. For example, segments are commonly defined by tributaries, significant bends or constrictions in the water body, or changes in human uses (agriculture to suburban development).

Yellowstone River at Hayden Valley

What exactly is meant by "fishable/swimmable" water quality?

"Fishable" is shorthand for the quality necessary to support the protection and propagation of fish, shellfish and wildlife. "Swimmable" is shorthand for the quality necessary to support safe recreation in and on the water — and includes all types of water-based recreation.

Although the term "fishable" sounds like it only describes waters clean enough to support fish for us to catch, it refers more broadly to water quality that is good enough for a healthy balanced population of native aquatic life.

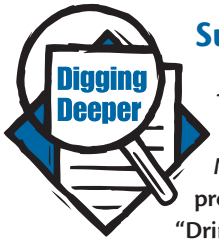
The EPA says that "to be consistent with the… interim goal of the Act, states must provide water quality for the protection and propagation of fish, shellfish, and wildlife and provide for recreation in and on the water where attainable" (WQS Handbook).

REGULATION
Clean Water Act

Is Dilution of Pollution a Protected Use?

No. CWA regulations state that "[i]n no case shall a State adopt waste transport or waste assimilation as a designated use for any waters of the United States."

(40CFR131.10(a))



Supporting the Sensitive Uses

The regulations require that designated uses must protect the most sensitive uses in the water. Many people assume that "Swimming" is a more protective designation than "Aquatic Life" and that "Drinking Water" is more protective than "Swimming." Thus, they assume that if their waterbody is designated as "Drinking Water," it is receiving the strongest possible protection.

But the relative stringency of designations can only be judged on a pollutant-by-pollutant and use-by-use basis. For example, increased salinity does not harm a swimming use (after all, people do swim in the ocean), but it could be disastrous for some freshwater fish and many of their food sources. Moreover, increased bacteria in a water body may not create an immediate hazard for people in cities that use it as a drinking water source (because bacteria, up to a point, can be treated in a drinking water treatment plant), but it could put people who swim in the water body at immediate risk. It is important to note that in protecting drinking water as a use, the Clean Water Act protections assume at least the basic required treatment will occur.

So, a "Drinking Water" designation is not necessarily more protective than a "Swimming" designation, and a "Swimming" designation is not necessarily more protective than an "Aquatic life" designation. This is why multiple designated uses are often necessary to protect all existing uses.

Most Sensitive Uses
(by pollutant)

	Bacteria	*Temperature*	*Sediment*	*Cryptosporidium**
Swimming	X			
Aquatic Life		X	X	
Drinking				X

* not all water treatment systems are capable of removing this pathogen

If a segment is designated for "swimming," is it safe to swim there?

Waters designated as "swimming" are not always safe for swimming. Neither are waters with a "fishing" designation necessarily safe for fish and other aquatic organisms or for catching and eating fish.

Agencies are often reluctant to upgrade a water body's use designation if satisfactory water quality conditions to support the proposed designations don't already consistently exist. But waters should be classified to protect all uses that already exist, even if water quality is not yet as consistently good as it ought to be for that use. For example, if people are actually swimming in the water, the water should be classified for swimming, even if existing water quality makes swimming sometimes unsafe.

This is significant, because if a water body used for swimming hasn't been designated for swimming, it will likely be much harder to achieve safe conditions.

A water quality designation recognizes existing and potential uses and sets the conditions necessary to support them. It does not necessarily make any statement about existing water quality conditions.

Why is it important to designate the right uses?

Designation of the right uses will lead to the development of sufficiently protective criteria (p. 26). The criteria, in turn, set the bar for which waters must be cleaned up (and how much) and which must be protected for their existing quality.

If you want to make sure that the Clean Water Act works properly in your watershed, you must begin by making sure that the right uses are designated.

Which use is the most sensitive to pollution?

The sensitivity of every use depends on the pollutant in question. Some uses require greater protection from certain pollutants, but not from others. For example, fish are likely to be more sensitive to high water temperatures than are swimmers. When a water body is designated for more than one use, protective levels for each pollutant and water body condition are to be set based on the use that is most sensitive to the pollutant or condition.

Do agriculture, industry and navigation uses need to be "protected?"

Some states list agriculture, industry and navigation among their designated uses. These are, in fact, among the uses that the Clean Water Act directs states to protect.

However, these uses do not usually require high water quality and almost never require higher quality than other uses that also must be protected. While designating these uses does no harm (unless

they are the only designated uses), it does little or nothing to protect or improve water quality.

Only designation of the most sensitive uses, accompanied by the most stringent criteria, can lead to the protection that water bodies need.

"Fishable and swimmable" water quality will always support agriculture, industry and navigation. But the reverse is not true. To settle for designation only of an agricultural, industrial or navigation use for your water is to concede the quality the Act was intended to provide.

What if a use is desirable, but is not currently being made of the water?

States may designate uses that are anticipated or desired. For instance, a state may choose to classify a water body for a "drinking water" use, even though no one is currently using it as a drinking water source. The drinking water designation would help the state set official clean-up and protection goals. It would also help prevent new activities that could make it harder to achieve and maintain the desired level of quality.

Can designated uses be removed?

The removal of designated uses is discouraged and may occur only in specific, limited circumstances. Weakening or removing a designated use is called "downgrading." **"Downgrading" is prohibited if it would remove protection for any existing use.** It is also prohibited if water quality to support the designated use could be attained through point source or nonpoint source controls (40CFR131.10(h)). If the designated use is not an existing use, and if all regulatory controls and best management practices are in place, a scientific assessment of the chemical, physical, biological and economic factors that determine whether the use can be achieved (use attainability analysis) must be performed before a designated use can be weakened or removed (40CFR131.10(j)).

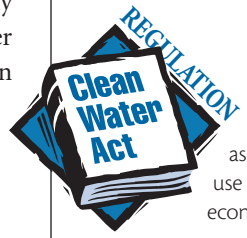
If either "aquatic life" or "recreation" uses are not designated for a water body, the CWA requires the state to formally reexamine the attainability of these uses at least once every three years (40CFR131.20(a)). From a legal perspective, states cannot simply omit the designation of these basic uses and abandon polluted water bodies. Unfortunately, this provision has not been enforced. Many of the nation's waters that remain "un-fishable" or "un-swimmable" have **never** been subjected to a formal use attainablility analysis and therefore have never been afforded the required protection.

Across the country there is increasing pressure to downgrade and remove uses amidst claims that uses were improperly designated in the 1970s or that they simply cannot be met.

Restrictions on Removal of Uses

"States may not remove designated uses if: 1) they are existing uses, as defined in Section 131.3 [of the regulations], unless a use requiring more stringent criteria is added; or 2) such uses will be attained by implementing effluent limits required under sections 301(b) and 306 of the Act and by implementing cost-effective and reasonable best management practices for nonpoint control."

(40 CFR 131.10(h))



Use Attainability Analysis

"Use attainability analysis is a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 131.10g."

(40CFR131.3(g))

"A State must conduct a use attainability analysis as described in §131.3(g) whenever:

(1) The State designates or has designated uses that do not include the uses specified in section 101(a)(2) of the Act [aquatic life, wildlife and recreation], or

(2) The State wishes to remove a designated use that is specified in section 101(a)(2) of the Act or to adopt subcategories of uses specified in section 101(a)(2) of the Act which require less stringent criteria."

(40CFR131.10(j))

How can I make sure that all the correct uses are designated for my watershed?

Watershed groups can play a significant role here. Put yourself in the driver's seat by placing the issue of use designation for your watershed's streams on your state's official agenda.

Gather information — pictures, newspaper articles, personal letters and the like — to document the full range of existing uses. Provide this information to your water quality agency, other public interest groups in the area and the media. Establish a good paper trail. Keep the EPA informed.

Then make a formal proposal to the state to designate all the proper uses for all the rivers, streams, lakes, wetlands and estuaries in your watershed. Continue to pursue the issue until all existing uses are protected by those designated in your watershed.

The designation of a use is the essential first step toward protecting the ecological conditions necessary to support the use. The next step is the application of strong water quality criteria.

✓ Action checklist

Designated uses

1. **Develop the list of existing uses in your watershed.**
2. **Get a copy of your water quality standards. Go to River Network's searchable database at www.rivernetwork.org/cleanwater/cwa_search.asp or EPA's water quality standards website at www.epa.gov/wqsdatabase/.**
3. **Identify which designated uses your water quality agency has included in the state-wide standards. Compare them to your list of uses.**
4. **Determine which uses have been designated specifically for the rivers, lakes, streams, wetlands and estuaries in your watershed.**
5. **Identify any waters whose existing uses may not be adequately protected by the uses that have been designated.**
6. **Provide your water quality agency with information (pictures, newspaper articles, personal letters, notes from your interviews with river users, etc.) to demonstrate the full range of existing uses for each waterbody.**
7. **Identify any waters without recreation or aquatic life designated uses. Ask for a "use attainability analysis" (scientific evaluation) for each.**
8. **Watch for proposals to remove uses or "downgrade" waterbodies. Insist on "use attainability analyses" and defend against removal of any uses that are existing.**
9. **Support or initiate the designation of any additional uses necessary (p. 45).**

Citizens Speak Out to Protect Uses in Kentucky Streams

When the Commonwealth of Kentucky announced its plan to re-designate 25 cold water streams as warm water, Kentucky Waterways Alliance (KWA) took action.

Kentucky has spring-fed and Appalachian headwater streams that are naturally cold. Continued recharge from groundwater keeps some of these streams cold for miles—often their entire length. Reducing the protection of the streams would be especially detrimental to aquatic populations.

"We contacted people who have been swimming or fishing in those streams all their lives," said Judy Petersen, KWA's executive director. "We were hoping that stories about cold water-dependent fish, such as trout, would give the state what they needed to maintain the existing protection."

© Plant Family photo archives

Lynn Camp Creek in Kentucky was one of the streams the state proposed to downgrade from cold to warm water aquatic habitat in 1999. Because of the efforts of concerned citizens, the creek remains designated as Coldwater Aquatic Habitat and is protected as a Cold Water Reference Reach Stream.

The public had not been adequately notified of the proposed changes. Citizens were very surprised that the state was going to change the level of protection for their stream.

The state did not pursue any changes in the streams where KWA was able to get local people to comment in opposition to the change —14 of the 25 streams! The local people did not bring official data to the public hearings, just their stories of how they have used the streams.

KWA sent comments to EPA and asked them to perform the required scientific reviews (use attainability analyses) for the remaining 11 streams. In the end, EPA only approved nine of the proposed changes to warm water. Three years later, after additional study, one of the cold water streams the state had proposed to change to warm water is now protected as a reference stream for cold water aquatic habitat!

The success of KWA's efforts to protect the cold water designations for Kentucky's streams underscores the need to tap local knowledge and to fight for thorough public processes in our efforts to defend protections for existing and designated uses in our waterways. ◆

For more information contact Judy Petersen with Kentucky Waterways Alliance (director@kwalliance.org).

Water Quality Criteria Requirements

"States must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use."

(40CFR131.11(a)(1))

© Pete Lavigne

Rogue River, Oregon

Water Quality Criteria

What are water quality criteria?

Water quality criteria are descriptions of the chemical, physical and biological conditions necessary to achieve and protect designated uses. Water bodies that do not violate criteria are said to "support their uses." Waters that do not meet their criteria or support their uses are said to be "impaired," and must be improved through pollution control, enforcement and watershed restoration activities (Chapter 4).

Water quality criteria should contain more than just limits for a few common pollutants. They should be varied and strong enough to define complete success in achieving the Clean Water Act's goal of "chemical, physical and biological integrity" for each water body in the state.

State-wide criteria associated with each designated use should be seen as starting points. Additional and more protective site-specific criteria can and should be developed for many waters. For example, the state's acceptable pH range may be too broad; the minimum standard for dissolved oxygen may be too low; or the maximum temperature standard may be too high to protect the most sensitive organisms in some waters in your watershed.

You should gather, develop and evaluate as much information as possible about the site-specific ecological characteristics and human uses of waters in your watershed. Then you should provide this information to your water quality agency, and encourage the agency to establish criteria that fully protect all existing uses.

Most state standards include both "numeric" and "narrative" criteria.

What are numeric criteria?

"Numeric criteria" are measurable water quality benchmarks. They are extremely important, because they serve as the basis for developing pollutant limits for discharge permits (Chapter 2). They are also invaluable in determining water quality problems and establishing specific, measurable goals for watershed restoration plans (Chapter 4).

For most pollutants, numeric criteria are expressed as maximum **acceptable concentrations**. For some other water quality measures, such as dissolved oxygen and temperature, they are expressed as a minimum or maximum **acceptable level.** For still others, such as pH, they are expressed as an **acceptable range.**

An example of a numeric criterion is "dissolved oxygen ≥ 5.0 mg/L." In plain English, this means that the level of dissolved oxygen in the water body should always be at least five milligrams per liter.

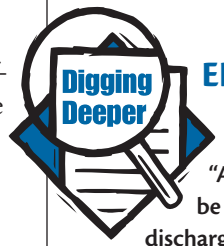
What are narrative criteria?

"Narrative criteria" are statements that establish water quality goals. Some narrative criteria describe a desirable biological condition, such as a balanced, healthy population of native aquatic life. Others express general statements about conditions that should or should not exist. For example, many states' narrative standards say waters should be "free from substances that may cause adverse effects to aquatic life or human health."

Since no state can ever set numeric criteria for all conceivable pollutants and water quality parameters, narrative criteria serve as an important backstop to numeric criteria. Narrative criteria are necessary to meet minimum legal requirements of the Act; all states include at least some narrative criteria in their standards today. One of the greatest challenges, however, is translating narrative criteria into discharge permit limits or into measurable goals for protecting and restoring watersheds (sidebar p. 32). Narrative criteria should always supplement numeric criteria, but they can never replace them.

Why aren't numeric criteria enough?

Most criteria adopted to date have focused on chemical measures of water quality. As important as these are, they will never be able to fully describe the conditions of a healthy water body. In other words, the basic criteria developed by most states to date are essential, but not sufficient.



EPA's Examples of Narrative Criteria

"All waters, including those within mixing zones, shall be free from substances attributable to wastewater discharges or other pollutant sources that:

1) settle to form objectionable deposits;
2) float as debris, scum, oil, or other matter forming nuisances;
3) produce objectionable color, odor, taste, or turbidity;
4) cause injury to, or are toxic to, or produce adverse physiological responses in humans, animals, or plants; or
5) produce undesirable or nuisance aquatic life."

(54 Fed. Reg. 28627, July 6, 1989)
Narrative criteria such as these are often referred to informally as a state's "free from" standards.

Criteria Examples

	NUMERIC (maximum, minimum, acceptable range)		NARRATIVE (watershed health goals)
Chemical Metals, pesticides, toxic contaminants, pH	Zinc Copper Dieldrin Dioxin	pH 6-9 Dissolved Oxygen > =6mg/L	• No toxic contaminants in toxic amounts. • No arsenic above natural levels.
Physical Temperature, sediment, flow, habitat conditions	Temperature <60 degrees TSS < 45 mg/L Flow > Minimum flows often set by fish and wildlife agencies	Cobble ≥ 25% Width to depth ratio	• No temperature fluctuations or sediment loading above "natural" conditions. • Flows must be sufficient to protect designated and existing uses. • Habitat must support designated uses.
Biological Species abundance, richness and diversity	Index of Biotic Integrity (IBI) Invertebrate Community Index (ICI) Number of each type of benthic macroinvertebrate found Number of types of benthic macroinvertebrates found		• Unimpaired habitat for aquatic life. • Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species. • Waters which currently support a high quality aquatic community shall be maintained at that high quality.

Consider the example of pure water running down a concrete ditch. It might well pass every numeric, chemical test. But it certainly does not represent a healthy water body capable of supporting a wide range of human and ecological uses.

Are there criteria that have not been universally adopted?

States have been reluctant to set criteria for pollutants that are hard to measure, such as sediment and nutrients (nitrogen and phosphorus), even though they are the greatest problems in many watersheds. The EPA has developed guidelines for states in both of those areas in the last few years (sidebar p.29).

In addition, physical characteristics such as habitat, stream morphology and stream flow are seldom represented in state standards even though they are critical factors that need to be monitored and maintained in order to support aquatic life uses of the nation's waters (see chart above for examples).

What are "biocriteria?"

Healthy streams, lakes and wetlands support healthy communities of aquatic life. Biological criteria (called "biocriteria" for short) are narrative descriptions and numeric values, derived from bioassessment data, that describe the communities of fish, bottom-dwelling invertebrates (like insects, mollusks, crustaceans and worms), algae and aquatic plants that live (or would live) in a healthy water body. In short, they define the Clean Water Act's reference to biological integrity.

River Network Collection

What is biological integrity?

In 1981, Karr and Dudley described waters with biological integrity as those that are able to support and maintain a balanced, integrated, adaptable community of living creatures comparable to those found under the natural conditions in a region (Karr, J.R. and D.R. Dudley, 1981. Ecological Perspective On Water Quality Goals. *Environmental Management*, 5:55-68). To protect and restore these conditions, we need to have an idea of what "natural conditions" (also known as *reference conditions*) are.

States and tribes must identify waters in a region that characterize the condition of "least-impaired" systems. For some systems, such as lakes, evaluating the record stored in sediment profiles can provide a measure of less-disturbed conditions.

How can something as variable as an aquatic ecosystem be measured and compared?

Aquatic ecosystems are dynamic. Measured conditions will change from season to season. But if the right set of indicators is chosen, the comparison to a reference site should yield similar results under similar conditions.

If the comparison changes dramatically over time, it is safe to assume that watershed conditions have changed. Chronic pollution levels may have increased; there may have been a short-term but severe pollution event; or habitat quality may have declined. If the comparison yields dramatically

Less Common Criteria – More Common Threats

Unfortunately, some of the most pervasive problems in our waters are not commonly addressed in water quality standards by either narrative or numeric criteria. The following criteria are needed to describe fully the state of watershed health.

- **Nutrient criteria**

Very few states have developed nutrient criteria. EPA has developed nine documents to address nutrient criteria in different water bodies in various areas of the country.

(http://www.epa.gov/waterscience/criteria/nutrient/ecoregions/#docs)

- **Sediment criteria**

Some States have established sediment criteria using numeric total suspended solids and turbidity measures, as well as narrative measures that prohibit "unnatural" levels of sediment in waterbodies.

(http://www.epa.gov/waterscience/criteria/sedimetn/index.htm)

- **Toxic contaminant criteria**

Many states have developed numeric and narrative criteria for toxic pollutants. EPA released guidance for several priority pollutants a few years ago. States are supposed to have developed criteria that are consistent with this guidance.

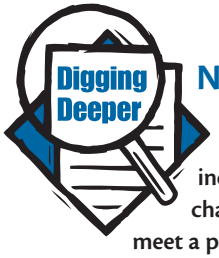
(http://www.epa.gov/waterscience/criteria/wqcriteria.html)

- **Flow criteria**

Four states (Kentucky, New Hampshire, Virginia, Vermont) have narrative flow criteria that call for the protection of adequate flows to support existing and designated uses.

EXAMPLES OF BIOCRITERIA

State	Narrative Criteria	Numeric Criteria	Organism Used
Maine	Class AA: Aquatic life shall be as naturally occurs Class B: Unimpaired habitat for aquatic life; discharges shall not cause adverse impacts	Model with 26 measurements; classifies sites	Benthic macroinvertebrates
Vermont	Class A(1): Change from the natural condition limited to minimal impacts from human activity	Index with seven measurements, classify waters based on combination of invertebrates or fish found	Benthic macroinvertebrates, Fish
Ohio	Exceptional warm water: Waters capable of supporting and maintaining an exceptional or unusual community of warm water aquatic organisms	Index of biotic integrity, classify waters based on combination of invertebrates found in different ecoregions; Invertebrate Community Index (ICI)	Benthic macroinvertebrates, Fish
Connecticut	Class B: Water quality shall be sufficient to sustain a diverse macroinvertebrate community of indigenous species… Waters which currently support a high quality aquatic community shall be maintained at that high quality.		Benthic macroinvertebrates



Narrative and Numeric Biocriteria

NARRATIVE BIOLOGICAL CRITERIA should include specific language about aquatic community characteristics that (1) must exist in a waterbody to meet a particular designated aquatic life use, and (2) are quantifiable. Narrative criteria need to be supported by numeric measures that define some of the ambiguous language that one finds in them, such as "*detrimental,*" "*as naturally occurs,*" "*minor changes,*" etc.

NUMERIC BIOLOGICAL CRITERIA are measures that quantify what a healthy biological community should look like for different designated aquatic life uses. Several specific measures (i.e., abundance, diversity, presence or absence of key indicator types and tolerance to pollution) are often combined into indices. The benefit of an index is that it can compensate for the weakness of one measure by combining it with the strengths of others.

different results at two different points in a stream, it is reasonable to assume that there is a stressor upstream of one but downstream of the other, or that the effects of a problem upstream of both diminish between them.

Why use biocriteria?

Biocriteria can be used to document problems that would otherwise go undetected. Many intense but short-term pollution events have serious biological effects, but are nearly impossible to document through conventional chemical stream monitoring alone. When such an event occurs, a violation of biological criteria is often much easier to demonstrate than a violation of a chemical standard, since a biological effect is usually much longer-lasting than the pollution event itself.

For example, if there is a midnight pulse of pollution from a temporary bypass of an industrial discharge treatment facility, typical periodic monitoring methods that focus exclusively on chemical water quality might fail to document the problem. But an inexpensive assessment of the numbers, diversity and balance of small, bottom-dwelling aquatic organisms conducted days or even weeks later might demonstrate a marked difference between stream health upstream and downstream of the offending facility.

Such inexpensive assessments can effectively detect many types of problems — including problems relating to land uses — that would otherwise be undocumented or even unsuspected. Once detected, problems can be addressed, and additional monitoring (that can be too expensive to conduct throughout the watershed on an ongoing basis) can be targeted for the site.

Most importantly, biocriteria can help us begin to grasp the most difficult problem of all — determining the cumulative effects of many watershed activities. It is virtually impossible to do this using chemical criteria alone.

Are there any disadvantages of biocriteria?

It is harder and harder to find comparable reference sites that are relatively undisturbed. If a poor reference site is chosen, the target biocriteria will be too weak.

Biocriteria cannot describe the health of water bodies on their own. Even when we are able to determine an impact on the biological community, we often can't pinpoint the source of the impact. To the extent that it is possible, chemical, physical and biological criteria need to be employed collectively to determine the health and the trends of our watersheds.

Which states have adopted biocriteria?

The EPA has not required all states to adopt biocriteria, but the agency is now strongly encouraging their development.

Ohio pioneered the development of biocriteria in the early 1980s. It has now developed its system to the point that it can be used as the basis for regulatory actions. Other states are now following suit. For example, the Maine Department of Environmental Protection established a state wide biomonitoring program that led to better use designations.

What about wetlands?

Many states have developed specific criteria for protecting wetland uses. Because wetlands have unique chemical, physical and biological characteristics, this makes sense. Narrative criteria, especially narrative biological criteria, can be used to manage a broad range of activities (particularly physical and hydrologic modifications) that impact the functions and values of wetlands. The EPA has developed specific numeric criteria recommendations for the protection of freshwater and saltwater aquatic life. These criteria are generally applicable to most wetland types. However certain criteria values such as dissolved oxygen, turbidity, color and hydrogen sulfide, may be different for wetland systems. Where wetland criteria do not exist, the general state water quality criteria apply (sidebar at right).

How do water quality criteria relate to permit limits?

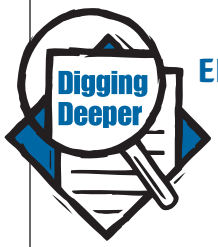
Water quality criteria apply to a water body itself — not to the quality of water that is discharged into it. However, water quality criteria and the status of the water body should influence pollution limits for individual permits.

For example, if a state finds that a discharger meeting only the minimum, end-of-pipe discharge standards would cause or contribute to a violation of water quality standards for the "receiving water," the state must then require the discharger to apply as much additional treatment as necessary to avoid violating the water quality standards and to protect the water body. The pollution limits in each discharge permit must be calculated to ensure that all water quality standards for the receiving water body will be met (Chapter 2, p. 59).

How do water quality criteria relate to watershed restoration plans (TMDLs)?

Water quality criteria should be the targets or goals for watershed restoration plans (Total Maximum Daily Loads/TMDLs). Chapter 3 explains watershed restoration plans in detail. TMDLs must lay out a plan to prevent or reduce contributions of pollution into each water body sufficiently to meet water quality criteria and support uses.

Because these plans are based on the strength and comprehensiveness of water quality standards,

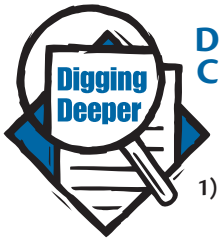


EPA Support of Biocriteria

- Biocriteria help shift the regulatory focus to the actual, rather than theoretical response of the watershed to pollution and other environmental stressors.
- Bioassessment data can be used to identify biologically impaired waters, verify impacts of point source discharges, assess the effects of habitat alteration and capture episodic or nonpoint source pollution.
- Aquatic biota are continuous monitors of environmental quality and integrators of environmental impacts.
- Biocriteria and bioassessment data may be used as the basis for evaluating the effectiveness of watershed restoration plans (TMDLs, Chapter 3) and actions taken to restore water bodies.
- Bioassessments and biocriteria can improve the National Pollutant Discharge Elimination System (NPDES) permit process by providing a biological picture of a receiving water's response to discharges and control measures. (http://www.epa.gov/waterscience/biocriteria/faqs.html)

EPA Wetland Criteria Guidance

Visit EPA's website for current information and guidance on criteria and methods to measure wetland health.
(http://www.epa.gov/waterscience/criteria/wetlands/)



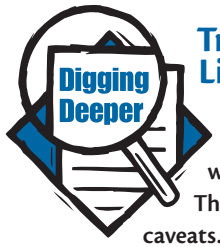
Developing a Water Quality Criterion

States can:

1) incorporate EPA guidance on the criterion directly into their water quality standards;

2) tailor EPA guidance to fit local conditions, or

3) develop a state-specific criterion using scientifically defensible methods.



Translating Criteria Into Pollutant Limits

States often rely on EPA guidance documents when developing criteria for specific pollutants. These guidance documents typically contain many caveats. For example, they might note that a given pollutant is easily tolerated by some organisms but very poorly tolerated by others, or that synergistic effects have been noted when the pollutant in question is found with certain others.

Unfortunately, such caveats are frequently overlooked when permits are written that allow increased levels of pollutants. It is worth gathering a few of these EPA guidance documents for pollutants of special concern in your area. When permits are issued or renewed, make sure that the EPA's numeric pollutant criteria recommendations are being applied with full consideration of site-specific issues that the EPA intended.

the value of employing a variety of water quality criteria to fully protect each use is underscored. Monitoring and assessment of many criteria is extremely useful in identifying problems, correcting them and maintaining chemical, physical and biological integrity.

If any one criterion is not met, the water body is only partially meeting uses, at best, and it is considered "impaired" even if all other criteria are met (Chapter 3).

How are state water quality criteria developed?

States may do their own research and policy work to develop criteria. Because this can be a substantial technical and financial burden, most states rely heavily on EPA guidance documents when dealing with common pollutants and some pollutants of special concern.

States use EPA guidance documents as starting points. They may select criteria from within a range of variables established by the EPA. The choices made can result in huge differences in the pollutant levels considered acceptable in a state. It is worth examining your state's methods for establishing criteria to see what assumptions go into setting these limits.

How can I get the technical help I need to assess and improve standards for my watershed?

A team of technical advisors is an invaluable resource for a group seeking to understand and improve water quality standards. If you create one, make sure you recruit people from several different fields of expertise, such as chemists, biologists, hydrologists and toxicologists.

Area colleges are often good places to start the search for highly qualified volunteer technical advisors. Local consulting firms are also good places to look. This team of people will likely serve you well in aspects of your work far beyond water quality criteria evaluation and development. The effort to build and support technical advisors early in your watershed organizing work is one of the best investments you can make.

Action checklist

Water Quality Criteria

1. Compile a list of characteristics that need to be monitored and managed to fully protect uses in your watershed.
2. Get a copy of your water quality standards. Most states have them available online, but you can use River Network's online searchable database to find your state contact and link to the standards. (www.rivernetwork.org/cleanwater/cwa_search.asp) You can also find the approved standards on EPA's website at www.epa.gov/wqsdatabase/.
3. Review the general narrative criteria that apply across the state.
4. Review the numeric criteria developed to protect existing and designated uses in your watershed. Is the state missing important criteria that you identified? What else should be measured, monitored and controlled through permits?
5. Determine which water quality parameters are particularly important in your watershed.
6. Identify how protection differs between designated uses. How does the temperature criterion change from "cold water fishery" to "warm water fishery?" How does the bacteria criterion change from swimming to boating?
7. Build a team of technical advisors consisting of biologists, chemists, hydrologists, toxicologists, etc.
8. Make a list of state-wide and watershed specific criteria that may not be strong enough to protect the uses in your area; develop your case for improving these criteria.
9. Make your case during the Triennial Review or in a petition process (p. 45).
10. Make sure that any caveats or regionally specific characteristics stated in EPA criteria guidance documents are fully considered when criteria are established, permits are written and watershed restoration plans (TMDLs) are developed.
11. Insist that permits and watershed restoration plans (TMDLs) in your watershed are based on the appropriate criteria.

Protecting Dissolved Oxygen in Tennessee

Barry Sulkin

A coalition of environmental groups opposed the state of Tennessee's proposed weakening of dissolve oxygen and pH criteria. The state proposed that specific water bodies should have less stringent water quality criteria because of "natural" conditions. The environmental coalition claimed that the weaker standards would not adequately support the aquatic life uses (designated and/or existing) in those water bodies and that the proposed changes were really related to reducing the 303(d) list and meeting the needs of powerful industries.

Where the dissolved oxygen change was proposed, there are numerous waste water treatment plants that discharge oxygen-consuming waste. Such a weakening would allow those treatment plants to increase discharges to meet increasing development pressures.

Coal mining is occurring where the pH change was proposed. One of the impacts of coal mining is a pH change in waters downstream of the mine tailings. The proposed change to the pH criterion would reduce the responsibilities of the mining operators to address the impacts of their discharges.

The coalition of environmental groups commented on the proposed changes, alerted the EPA about the problems with the proposed changes and raised public concern as well.

In the fall of 2004, EPA did not approve these two proposed changes when they approved the rest of state's water quality standards package. The state has sent a letter to EPA stating that it will keep the statewide dissolved oxygen and pH criteria in place. ◆

For more information contact Barry Sulkin with Tennessee Public Employees for Environmental Responsibility (sulkin@bellsouth.net).

River Network Collection

Hoko River, Washington

Antidegradation Policy

The antidegradation policy is the third major required component of state water quality standards. Although it is just as important as the others, it is the least well known and consequently the least implemented of the three. Designated uses and water quality criteria provide minimum goals for a water body. The antidegradation policy provides both a framework for protecting water quality once goals are reached and a system for protecting the good quality of water bodies that have always met or exceeded their standards. If the antidegradation policy remains poorly implemented, our national water quality goals will remain elusive.

As we strive to fulfill the Clean Water Act's primary objective – to restore and maintain the chemical, physical and biological integrity of the Nation's waters – the antidegradation policy should be our primary tool for the protection of sensitive uses and the water quality that supports them.

What is the Origin of Antidegradation?

Antidegradation requirements actually pre-date the Clean Water Act. They were adopted as policy by the Secretary of the Interior in 1968. After the Clean Water Act was passed, the EPA included the antidegradation policy in the first regulations on the minimum conditions for each state's water quality standards (originally 40CFR130.17, refined in 1983 40CFR131.12).

Although the antidegradation policy was based on the intent of the primary goal of the Clean Water Act, "to restore and maintain the chemical, physical and biological integrity of the Nation's waters," it was not specifically added to the Act until in the 1987 amendments (CWA section 303(d)(4)(B)).

Antidegradation Policy

"(a) The State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such a policy pursuant to this subpart. The antidegradation policy and implementation method shall, at a minimum, be consistent with the following:

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area where the waters are located. In allowing such degradation of water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the Act."

(40CFR131.12)

What does the federal antidegradation policy require?

The federal policy provides an approach to water quality protection based on three key principles called tiers:

Tier 1	Tier 2	Tier 3
PROTECT EXISTING USES **Permit no activity that would eliminate, interfere with or lower water quality necessary to support existing uses.**	MAINTAIN "HIGH QUALITY" WATERS **Avoid — or at least hold to an absolute minimum — any lowering of the quality of waters that currently meet or exceed standards.**	PROTECT "OUTSTANDING" WATERS **Give the most ecologically significant and sensitive, the healthiest, and the most recreationally popular waters the strict protection they need and deserve.**

What must states do to meet these antidegradation requirements?

Each state must develop and adopt an antidegradation policy that is consistent with the federal policy. It can be identical to the federal policy, or it can be more specific and more protective. It must not be any less specific or protective.

Each state must also develop a system for implementing its antidegradation policy (40CFR131.12(a)). This system should ensure that the state's major programs, permits, decisions and day-to-day activities affecting water quality and aquatic ecosystem health will be consistent with its antidegradation policy.

Why haven't I heard about the Antidegradation Policy?

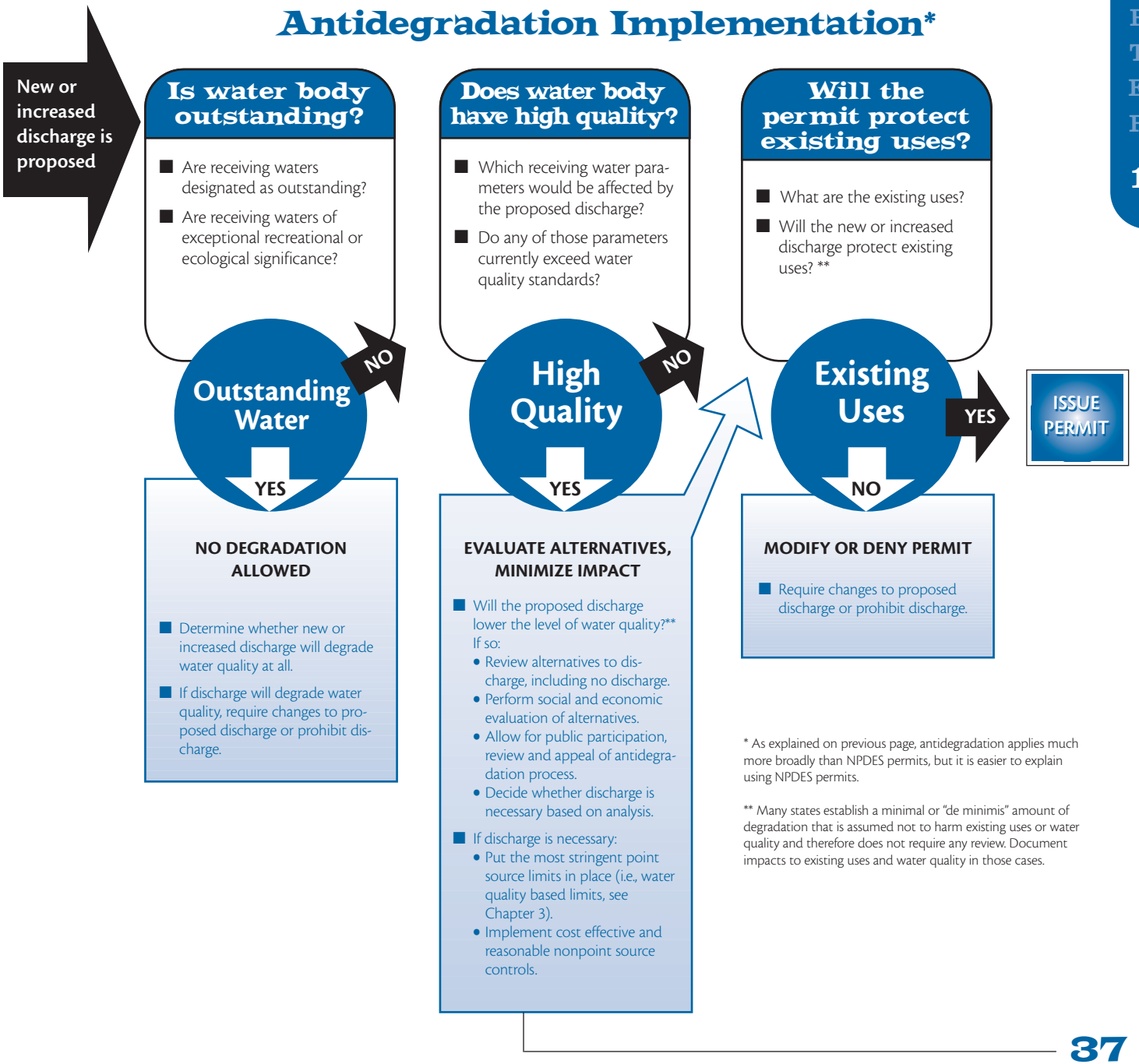
To this day, antidegradation remains the most neglected cornerstone of the Clean Water Act. Hundreds of billions of dollars have been distributed by federal and state agencies to help cities clean up their sewage treatment systems. Industries have spent at least that much upgrading their technologies to meet higher discharge standards. Hundreds of thousands of pollution permits spelling out technology-based and in-stream water quality-based limits for individual dischargers have been developed.

In many watersheds, however, these kinds of water quality gains have been offset partially or completely by new discharges and activities, and the condition of many formerly healthy watersheds has deteriorated dramatically. This is because antidegradation policies have not been adequately developed and implemented. As a result, even our most treasured waters remain vulnerable to exploitation. In fact, very high quality water often attracts proposals for new water quality degrading activities, because without antidegradation rules it is much easier to obtain permission to discharge into our cleanest waters than into any others.

How should antidegradation review work?

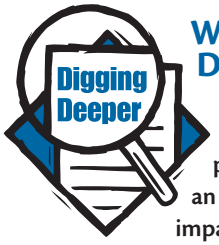
According to the EPA, antidegradation implementation should be "based on a set of procedures to be followed when evaluating activities that may impact the quality of the waters of the United States" (WQS Handbook, Chapter 4). For simplicity, the steps below focus only on proposed new or increased **NPDES permitted discharges**, even though the antidegradation policy applies more broadly (see next question).

It is easiest to review a permit or activity by following the three tiers of antidegradation in this order: **protect**



* As explained on previous page, antidegradation applies much more broadly than NPDES permits, but it is easier to explain using NPDES permits.

** Many states establish a minimal or "de minimis" amount of degradation that is assumed not to harm existing uses or water quality and therefore does not require any review. Document impacts to existing uses and water quality in those cases.



What is "de minimis" Degradation?

Today most states allow a some amount of new pollution, called "de minimis" degradation, before an antidegradation review is triggered. De minimis impacts currently allowed by some states include:

- **temporary degradation**
- **new discharges that require "only" a given percentage of available dilution (e.g. 10-25% erosion of existing quality)**
- **existing discharges that increase "only" by a certain percentage (e.g., 10% more)**

Some states define an overall cap for de minimis to address cumulative pollutant loading.

De minimis degradation has been taken to an extreme in many states – creating a giant loophole that allows virtually any new activity to be allowed with little or no antidegradation review. Neither the CWA, nor the regulations, nor the guidance in the WQS Handbook suggest a de minimis exemption from antidegradation review and protections.

outstanding waters, minimize impacts to high water quality and protect existing uses. The state should first determine whether the waters are outstanding (Tier 3). If so, then no new or increased discharges to outstanding waters or their tributaries should be allowed.

If the water body is not outstanding, yet it has higher water quality than what is required by water quality standards, any proposed activity that might degrade water quality must undergo an evaluation of alternatives regarding necessity, including the economic and social needs and impacts (see chart p. 38). If the receiving water is neither outstanding nor "high quality" then determine whether the proposed activity will cause harm to existing uses or to the water quality they require. Described as the "absolute floor of water quality in all waters of the United States," the antidegradation policy's **Tier 1** requires that a proposed activity be disallowed if any existing uses will be harmed.

When is an antidegradation review triggered?

The *EPA Water Quality Standards Handbook* (Section 4.0) states that "[a]ny one or a combination of several activities may trigger the antidegradation policy analysis." At the very least, an antidegradation review is required as part of each new or expanded NPDES permit (Chapter 3) and each state water quality certification (Chapter 5). State water quality certifications are required with federal dredge and fill permits (Chapter 6), among other federal permits and licenses.

According to the EPA, antidegradation is also triggered by other activities, such as review of water quality standards and new or revised TMDL allocations.

The *EPA Water Quality Standards Handbook* explicitly states that nonpoint source activities are not exempt from the provisions of the antidegradation policy. However, some states have adopted nonpoint source exemptions to the antidegradation policy in their water quality standards.

When a water body has impairments, does antidegradation still apply?

Yes! To begin with, any new, potentially — degrading activity should receive a Tier 1 review to prevent harm to existing uses.

In addition according to the *EPA Water Quality Standards Handbook*, if a new activity will lower the **quality of a water** in any respect in which it currently exceeds standards, Tier 2 of antidegradation should also apply. In other words, even if one pollutant is impairing a water body, antidegradation Tier 2 still applies for all the other pollutants that can potentially be discharged in order to protect the current high quality of that water body.

Protecting each water body from each pollutant is known as the pollutant-by-pollutant approach, and it is preferred by the EPA (WQS Handbook, 4.5). However, the EPA has allowed states to adopt a "water body approach" whereby any water body with even one impairment is not considered high quality and will not receive Tier 2 protection against degradation. Those waters then will only receive the "absolute floor" of protection against harm to existing uses (Tier 1, sidebar at right).

Who must prove that lowering high water quality is 'necessary to accommodate important economic or social development in the area?'

The burden of proof is on the entity proposing the activity. The EPA states in its WQS Handbook that the Tier 2 provision, which allows degradation, "is intended to provide relief only in a few extraordinary circumstances…" and that "[t]he burden of demonstration on the individual proposing such activity will be very high" (WQS Handbook, 4.5).

To live up to the intent of the federal regulations, it is critical that each states' implementation procedures require an analysis of alternatives (including not proceeding with the activity). That analysis should include an evaluation of social and economic impacts, coordination with other interested government entities, and public involvement. The public should have a chance to review the analysis and appeal the result.

Can Outstanding National Resource Water (ONRW) designation be used to protect reference streams?

Absolutely. Biological criteria and many narrative criteria depend on comparisons between watersheds of similar geography, climate and ecoregion – one that is relatively intact and one that has experienced some degradation. Finding waters that can be used as reference streams, against which similiar water bodies can be measured, gets harder and harder. Restoring the integrity of our nation's waters depends on our ability to protect the characteristics of reference waters. ONRW (Tier III) designation could be very useful in that effort.

Must waters meet all water quality standards to receive Tier III protection?

No. Waters of "exceptional recreational or ecological significance" are to be considered in the development of a state's list of outstanding waters. Waters of recreational importance may include waterfalls or whitewater rivers, even if they are polluted. Waters of ecological importance or sensitivity include waters throughout the country that support aquatic biodiversity, in spite of current pollution problems. These waters should be given strict protection from new forms of degradation, whether or not their existing quality is particularly high. Nothing in the regulations requires that states must *designate* outstanding (Tier III) waters in order to provide the protection of the antidegradation policy. In many states, few if any waters have been designated as outstanding because there is either no designation process, or the process is too onerous and/or political. Therefore, there are many *undesignated* waters across the country that deserve the outstanding waters protection.

High Quality Water: Parameter-by-Parameter Approach

Many water quality advocates believe strongly that the parameter-by-parameter approach is the only approach that meets the intent of the federal statute and regulations. According to EPA, "high quality waters are those whose quality exceeds that necessary to protect the [primary] goals of the Act (protection and propagation of fish, shellfish and wildlife and recreation in and on the water), regardless of use designation. All parameters do not need to be better quality than the State's ambient criteria for the water to be deemed a 'high-quality water' and protected as such. EPA believes that it is best to apply antidegradation on a parameter-by-parameter basis.

However, EPA evaluates each state's interpretation of antidegradation for conformance with the statutory and regulatory intent of the antidegradation policy. EPA has accepted approaches that do not use a strict pollutant-by-pollutant basis. (WQS Handbook, 4.5)

Is any discharge allowed into an Outstanding National Resource Water (ONRW)?

According to EPA, no new or increased discharges are allowed to ONRWs or their tributaries that would result in lower water quality in the ONRW (WQS Handbook, 4.7). Existing discharges are usually allowed to continue, however, at the same amounts as when an ONRW is designated. New or expanded discharges or activities are allowed only if it can be demonstrated they will not affect the water quality or characteristics of the ONRW. Many states define a long list of activities that are not considered degradation. Temporary lowering of water quality and emergency situations are generally considered allowable in an ONRW. To prevent abuse of this provision, it is important to determine what constitutes a temporary or emergency discharge when designating or defending an ONRW.

What have states done with antidegradation requirements?

Every state has adopted an antidegradation policy of some kind. State policies vary widely in clarity and strength.

While there is considerable room for improvement in most state antidegradation policies, there is even more room for improvement in antidegradation implementation procedures, most of which range from weak to nonexistent. Few states consider the policy in everyday discharge or dredge and fill permitting activities. Even fewer apply it to any other types of water quality decisions. None have developed the comprehensive antidegradation implementation systems that are needed.

What is Tier 2.5?

Many states, concerned about the economic or political impact of designating ONRWs, have developed a so-called Tier 2.5 designation. It may be described as an Outstanding Resource Water or Outstanding State Water (e.g., Outstanding Florida Water) in the regulations. These hybrid designations come in many shapes and sizes, generally with the purpose of avoiding an outright prohibition of new or increased discharges, dredging, fills or impacts. In a state that is unwilling to designate ONRWs, this option can provide more specific and greater protection than Tier 2. On the other hand, the Tier 2.5 designation can deprive a water body of the Tier 3 protection it needs and deserves. If your state has a Tier 2.5 classification you should examine the criteria for it very carefully. In some states, Tier 2.5 designation offers less protection than a proper Tier 2.

How can I learn about my state's antidegradation policy?

The policy itself is a part of your state's water quality standards. It is likely to be accessible from the state agency website. You can also go to the River Network searchable Clean Water Act database for the appropriate antidegradation contact and links to your antidegradation policy (sidebar at right).

Tier 2.5

To find out more about Tier 2.5, review Section 4.2 of EPA's Water Quality Standards Handbook. (http://www.epa.gov/waterscience/standards/handbook/)

For more information you can contact your state water quality agency and ask for the person in charge of water quality standards.

How can I find out whether my state is properly implementing antidegradation?

Because new or increased discharges are the most obvious potential sources of degradation to our waters, it is easiest to review your state's procedures by reviewing several individual NPDES permits. Keep in mind that antidegradation applies to many more activities than NPDES discharges (p. 38). Once you identify new or increased discharges, you should look for any evidence of an antidegradation analysis or determination by the water quality agency that there will be no degradation caused by the discharge. (See Chapter 2 for more information about reviewing discharge permits.) Even if your state is performing antidegradation reviews, there may be no documentation.

Antidegradation implementation procedures are often, but not always, found in guidance documents, separate from the water quality standards regulations. They are likely to be accessible from the state agency website. You can also go to the River Network state Clean Water Act database for links related to your state's implementation of the antidegradation policy (sidebar at right).

What common problems should I look out for?

- **Large exemptions from antidegradation review.** When a state has created enormous loopholes to circumvent antidegradation analysis (such as allowing "de minimis" amounts of additional pollution and nonpoint source polluting activities without review) its policy and implementation procedures are not consistent with the federal regulations.

- **Use of the water body approach.** If your state defines high quality waters only when there are no impairments at all throughout the segment or water body, most water bodies will only receive the minimum antidegradation protection against harm to existing uses. Under this approach, waters that are polluted by even one contaminant, such as sediment, may never receive adequate protection from activities that may contribute other contaminants such as bacteria, heavy metals or toxic chemicals. All waters deserve Tier 2 protection of existing water quality pollutant-by-pollutant.

- **Grandfathering of existing permits.** If your state does not currently have an adequate antidegradation policy or implementation procedures in place, then water bodies are not receiving adequate protection of existing water quality. There is debate regarding the need for all current permits to undergo an antidegradation analysis at the time of renewal if they have never been subject to one before. At the very least, requiring antidegradation review for all permit renewals would ensure the "absolute floor" of antidegradation protection – to prevent harm to existing uses.

River Network's Clean Water Act database. Select your state and scroll down to the antidegradation information and links. (http://www.rivernetwork.org/cleanwater/cwa_search.asp)

Review your state's antidegradation process using NPDES discharge permits

(Chapter 3 may help)

1. *Pick at least 10 permits.*

Such as:

- *major permits, the most recently issued or renewed*
- *mix of municipal and industrial discharges*
- *at least one or two draft permits that are out for comment*

2. *Compare current permits to old permits (if applicable).*
3. *Look for changes that were allowed (or are proposed) and may have led to degradation. For example:*
   - *new discharges or outfalls*
   - *increased discharges (either concentration or loading)*
   - *seasonal discharges that extend over a greater number of months*
   - *changes to the instream flow assumptions*
   - *changes to the design flow discharge*
   - *weakening or removal of permit limit(s)*
   - *creation of or increase in a mixing zone*
   - *waiver of permit limits under certain storm conditions*
4. *Look for any analysis on file that could be considered an antidegradation review. Look for any reference to the antidegradation policy.*
5. *Talk with the agency about one or more of the permits with the most obvious changes.*
6. *Identify parts of the federal policy that are not implemented.*
7. *Identify where the state regulatory language and implementation guidance could be improved.*
8. *If the state doesn't act to improve antidegradation reviews you can pursue media attention, EPA review and legal action.*

Note: You can also do this for the 401 water quality certification of 404 permits and FERC liscences (required for private hydropower dams) or anywhere else that 401 certification is performed. For example, if EPA is in charge of your NPDES permit process, 401 certification applies.

What if my state antidegradation policy is not consistent with the federal policy and implementation procedures have not been developed?

The EPA is required to disapprove water quality standards that are inconsistent with the federal regulations (40CFR131.21). Yet, EPA has only recently begun to do so when antidegradation policies and procedures are inadequate, even though they are required elements of water quality standards (40CFR131.6). Once an antidegradation policy is disapproved by EPA, the state must change the policy to address EPA's concern. If not, EPA is required to develop a new policy for the state (40CFR131.22). Regarding the implementation procedures, EPA may disapprove them and promulgate new procedures if it has been determined that all or part of the state's process could result in circumvention of the intent and purpose of the federal antidegradation policy (WQS Handbook, 4.3). Otherwise, it is simply up to EPA to check that something is in place to describe implementation of antidegradation.

✓ Action checklist

Antidegradation

1. Go to River Network's database of state Clean Water Act information to get a copy of your state's antidegradation policy and implementation procedures (www.rivernetwork.org/cleanwater/cwa_search.asp).

2. Compare your agency's policy to the federal policy. Note any sections that are less protective than the federal policy (p. 36) as well as any that seem unclear or incomplete.

3. If your state has implementation procedures, review them carefully. Do they seem adequate to turn policy into everyday action? If implementation procedures have not been developed, insist that the state agency do so. Use the federal regulations (40CFR131.12(a) on p.36) to make your point.

4. Ask officials with your agency whether and how the policy is applied to permitting decisions (e.g., NPDES, 404, 401) in your watershed. Ask for recent examples. Is there documentation of the review? Insist on it.

5. Document any instances when you believe the policy should have been applied but it wasn't. Put your concerns about the adequacy of the policy or its implementation in writing and discuss them with officials at your water quality agency and the regional office of the EPA.

6. When new permits are proposed or old ones renewed, get involved to make sure the antidegradation procedures are fully and faithfully followed. The antidegradation policy applies beyond permits to "activities," but it is easier to evaluate the process through NPDES permits and 401 certification of federal permits.

7. If improvements in the state's policy and procedures are needed, work with other public interest groups to secure them through the Triennial Review or a petition (p. 45).

Antidegradation protects Lake Lanier from sewage

The antidegradation policy is intended to protect against erosion of existing water quality. In Georgia, several environmental groups have succeeded in applying the antidegradation policy to prevent a proposed expansion of Gwinnett County's waste water treatment facility from degrading the quality of Lake Lanier.


© Joe Cook

Fog burns off Lake Lanier in Georgia

Lake Lanier is the main drinking water source for Atlanta and is a recreational destination for 7.5 million visitors annually. The lake is considered a "high quality" water because its quality is better than the minimum levels established in Georgia's water quality standards.

A permit was initially issued to Gwinnett County for an expansion to their wastewater treatment plant. This permit authorized pollution discharges that would unnecessarily lower water quality levels in Lake Lanier. The proposed amounts of discharge were unnecessary because Gwinnett County's F. Wayne Hill treatment plant is state-of-the-art and can meet more stringent controls.

For the last four years, marina owners, environmentalists and lake homeowners have fought the Gwinnett County permit that would allow discharge of up to 40 million gallons of treated sewage per day into Lake Lanier. Federal regulations require that high water quality must be maintained and protected unless degradation is necessary for social and economic reasons. In addition, Georgia's antidegradation rules stipulate that the "permittee utilize the highest and best [level of treatment] practicable under existing technology."

In December 2004, the Georgia Supreme Court ruled in favor of the plaintiffs (Terrence D. Hughey, Lake Lanier Association, Upper Chattahoochee Riverkeeper and Sierra Club) denying the issuance of the permit for Gwinnett County's wastewater treatment plant.

To accommodate the rampant growth expected and encouraged within the county, this decision requires the county to work with the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources to develop another permit that is sufficiently protective of the high water quality of Lake Lanier and that reflects the treatment capabilities of their outstanding treatment plant. As we go to press, the EPD is considering changes to the antidegradation policy that would no longer require the highest and best level of treatment. ◆

For more information contact Justine Thompson with the Georgia Center for Law in the Public Interest (jthompson@cleangeorgia.org).

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Students in New Mexico receive awards from South Valley Partners for Environmental Justice after testifying at the state's triennial review. Their efforts helped to upgrade water quality standards in the stretch of the Rio Grande that flows through their community.

Influencing Water Quality Standards

What is the "triennial review?"

The Clean Water Act requires each state to hold regular public hearings on the adequacy of its water quality standards. These hearings must be held "from time to time," but "at least once every three years" (40CFR131.20).

The entire state water quality standards system is up for analysis, debate and revision during the triennial review. This is the public's best chance to comment on individual pieces of the system, including:

- the state's designated uses;
- the criteria associated with designated uses;
- the segments into which water bodies are divided for classification;

Regular Review of Standards – "Triennial Review"

REGULATION Clean Water Act

"The State shall from time to time, but at least once every three years, hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards."

(40CFR131.20(a))

Required for EPA Approval of Water Quality Standards

REGULATION Clean Water Act

After the state has adopted new water quality standards, the following elements must be included in its submission to the EPA for approval:

"(a) use designations consistent with the provisions of Sections 101(a)(2) [fishable/swimmable] and 303(c)(2) [public water supplies, propagation of fish and wildlife, recreational purposes, agricultural, industrial, navigation and other]of the Act;

(b) methods used and analyses conducted to support water quality standards revisions;

(c) water quality criteria sufficient to protect the designated uses;

(d) an antidegradation policy consistent with the federal policy found at 40CFR131.12;

(e) certification by the state Attorney General or other appropriate legal authority that the water quality standards were duly adopted pursuant to state law; and

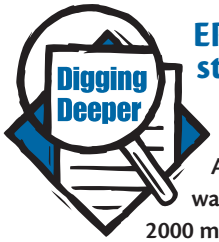
(f) general information which will aid the Agency in determining the adequacy of the scientific basis of the standards which do not include the uses specified in section 101(a)(2) [fishable/swimmable] of the Act as well as information on general policies applicable to State standards which may affect their application and implementation. "

(40CFR131.6)

What if my state has not had a "triennial review" hearing in more than three years?

While these hearings are supposed to take place at least once every three years, many states have not held them regularly. If you do not know when the last triennial review hearing for your state was, call your state water quality agency. You can find contact information and some information on the last and/or next hearing (if the state agency reported to us) in River Network's searchable CWA database (www.rivernetwork.org/cleanwater/cwa_search.asp) under triennial review hearings.

If it has been more than three years, write a letter to the contact person requesting that a triennial review be scheduled. Copy your letter to your regional EPA office. You might also send a copy to some key state newspapers.



EPA must approve water quality standards

Thanks to a 1997 federal court decision regarding Alaska water quality standards, any changes to water quality standards adopted by states after May 2000 must be officially approved by EPA before they are considered valid. (Alaska Clean Water Alliance V. Clark, No. C96-1762R (W.D. Wash)) This decision is called the "Alaska Rule."

- the uses designated and criteria developed for each water body segment;
- the antidegradation policy and implementation procedures; and
- any other "general policies" (including narrative criteria, variances and mixing zone rules).

Take this opportunity to comment on the adequacy of each piece of the standards, as well as on how well these pieces collectively protect and restore the state's waters. You should also take the opportunity to make specific suggestions for improvements. On the basis of new public input, scientific information and agency review, the state may decide to propose a change in one or more of the water quality policies or rules.

Unfortunately, few states perform the triennial review every three years. It is important for citizens to insist on the review of water quality standards when it is time (sidebar at left).

How are changes to standards adopted?

Before any changes to a state's water quality standards can take effect, the EPA must approve them (see sidebar). When a state submits proposed changes to the EPA for review (which must be within 30 days of state adoption), the EPA has 60 days to approve them and 90 days to disapprove them. If the EPA disapproves some or all of the standards submitted, it must specify changes necessary to meet the requirements of the Act. And if the state does not make those changes (within 90 days), the EPA must develop and promulgate adequate standards for the state (CWA, section 303(c)(3)-(4), 40CFR131.20-22).

Can states weaken standards?

States can, and sometimes do, weaken standards. Changes that seem innocuous to the casual observer can have a huge impact — for better or for worse.

For instance, the differences (a) between a cold water aquatic life use and a marginal aquatic life use; (b) between year round or seasonally adjusted criteria; and (c) between total dissolved metals and total recoverable metals can make a considerable difference in the allowable pollutant discharges or in the goals and responsibilities in a watershed restoration plan.

Some members of the regulated community put constant pressure on state agencies to weaken standards. In particular, a great deal of effort is focused on the removal or downgrading of designated uses. However, no existing uses can be removed and no other uses can be weakened without a scientific analysis (Use Attainability Analysis, p. 23). Consistent support for correct uses and strong criteria from an informed, involved public makes it easier for agencies to resist this pressure.

Can standards be changed outside the triennial review?

Yes. States can initiate changes by consulting with the EPA, notifying the public, and providing ample

opportunity for public review and comment. The public review and comment process must include at least one public hearing (40CFR131.20(b)).

Proposed changes must go to the EPA for review and approval. The EPA has the same amount of time to take action as it does during the triennial review.

The public can also initiate standards changes. The rules for initiating changes vary from state to state. They should be available from your state agency or your regional EPA office.

What is a "petition for rulemaking?" When and how can it work?

One common state procedure for public-initiated changes is a "petition for rulemaking." Many states' administrative rules allow interested parties, including public interest groups, to petition state agencies to amend environmental and other types of rules.

Don't be intimidated by the term "rulemaking petition." You won't have to conduct a door-to-door campaign to secure hundreds or thousands of signatures to create an overwhelming show of public support. State rulemaking petitions are simply formal requests for a state agency to amend its rules in a particular way. Corporations, associations and public interest organizations can submit a rulemaking petition, and most states allow them to be submitted by individuals.

State rules about how to petition for rule changes vary, but you may not need any signatures other than your own to put the process in motion. Of course, strong public support for the proposed change can't hurt. Even if it is not legally required to start the process, widespread support may be the key to getting your proposal on the fast track to success.

It is desirable to have legal help in pursuing changes to your state's regulations. You should seek an attorney that has a good working knowledge of the state's administrative rules, in addition to an understanding of the basic Clean Water Act principles at issue.

What kinds of changes may I request?

You should be able to ask for changes to any part of your state's water quality standards. You might request changes in the use designation(s) of a particular water body, improvements in criteria that apply to one or more uses, strengthening of the antidegradation policy, or clarification of the antidegradation implementation procedures. It is important to urge that waters be designated for swimming and aquatic life, wherever attainable, to reflect the Clean Water Act goals.

Does it make sense to petition for something that is technically required?

Many supposedly "required" elements of state programs, such as antidegradation implementation

Regional EPA Offices

Region 1 **Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont:**
1 Congress St, Suite 1100, Boston, MA 02114-2023; (888) 372-7341; (617) 918-1111; http://www.epa.gov/region01/

Region 2 **New Jersey, New York and the territories of Puerto Rico and the U.S. Virgin Islands:**
290 Broadway - 26th Floor, New York, NY 10007-1866; (212) 637-5000; http://www.epa.gov/region2/

Region 3 **Delaware, Maryland, Pennsylvania, Virginia, West Virginia and the District of Columbia:**
1650 Arch St, Philadelphia, PA 19103-2029; (800) 438-2474; http://www.epa.gov/region03/

Region 4 **Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee:**
Atlanta Federal Center, 61 Forsyth St SW, Atlanta, GA 30303-3104; (800) 241-1754; (404) 562-9900; http://www.epa.gov/region4/

Region 5 **Indiana, Michigan, Minnesota, Ohio and Wisconsin:**
77 W Jackson Blvd, Chicago, IL 60604; (800) 621-8431; http: www.epa.gov/region5/

Region 6 **Arkansas, Louisiana, New Mexico, Oklahoma and Texas:**
1445 Ross Ave, Suite 1200, Dallas, TX 75202; (214) 665-2200; http://www.epa.gov/region6/

Region 7 **Iowa, Kansas, Missouri and Nebraska:**
901 N. 5th Av, Kansas City, KS 66101; (800) 223-0425; (913) 551-7003; http://www.epa.gov/region7/

Region 8 **Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming:**
999 18th St, Suite 300, Denver, CO 80202-2466; (800) 227-8917; (303) 312-6312; http://www.epa.gov/region8/

Region 9 **Arizona, California, Hawaii, Nevada and the territories of Guam and American Samoa:**
75 Hawthorne St, San Francisco, CA 94105; (866) 372-9378; (415)947-8000; http://www.epa.gov/region09/

Region 10 **Alaska, Idaho, Oregon and Washington:**
1200 6th Ave, Seattle, WA 98101; (800) 424-4EPA; (206)553-1200; http://www.epa.gov/region10/

procedures, have fallen through the cracks over the years. When people find such deficiencies in their state programs, their instinct is often to file a lawsuit. But a simple petition for a rule change can be quicker, easier, cheaper and less politically draining.

Filing a petition can also put you in the driver's seat. By proposing specific, needed changes, you deal with a problem proactively. This can be good short-term strategy and long-term politics. Approaching a legal problem in this way also creates a record that can strengthen a lawsuit if one does indeed become necessary.

What if my state does not have a "citizen petition" process?

If your state does not have a citizen petition procedure like the one described above, it should have some other method that provides for proactive public involvement. Your state environmental agency, state attorney general's office or regional EPA office can tell you how to find and follow the rules.

If you are not satisfied with your state's public involvement procedures, you can focus on improvements to them as a key objective for the next triennial review. Alternatively, you might take your concerns directly to the EPA, your state environmental commission, governor, attorney general, legislature or media.

What if I can't bring about necessary changes through the triennial review or a rulemaking petition?

If serious problems with your with state's water quality standards remain after you have given one or more of the public involvement avenues a try, it is time to consider either persuading the EPA to take action or going to court.

Schedule a meeting at your regional EPA headquarters. Ask to meet with at least two or three officials with responsibilities for your state. Precede your trip with a formal letter summarizing your concerns, documenting your claims with facts, and explaining the actions you believe should be taken. (The paper trail you have been keeping will begin to be especially handy now.)

If you have kept EPA officials in the loop from the start, your chances of getting quick results will be best. Like the rest of us, agency officials prefer hearing about emerging issues in the first hour, not the eleventh.

When should I consider going to court?

There are times and places for well-crafted, well-targeted lawsuits. If you've tried everything else and the issue is important, it may be worth going to court. Or, if the environmental consequences of not resolving an issue right away are significant and irreversible, it might be best to go to court immedi-

ately and seek a quick decision or injunction.

However, be aware that going to court can be the slowest, costliest way to resolve a water quality standards problem. Getting the results you want is not necessarily any more certain in court than in other venues — particularly if the decision boils down to an agency's judgment call, as opposed to a matter of fact or a clear principle of law.

Who would I sue over state water quality standards?

The Clean Water Act allows citizens to sue the EPA in federal court to force the agency to fulfill "non-discretionary" duties which include requiring states to correct deficiencies in water quality standards.

If, for example, there is compelling evidence that the state has not designated uses properly or has not adopted criteria that adequately protect all existing uses and the EPA (a) has not disapproved state standards, (b) has disapproved but not rewritten them, or (c) has approved them anyway, you can sue the EPA to get it to disaprove and/or revise standards. Such a lawsuit often forces the state to do its job (Chapter 8).

Citizens can also file a Clean Water Act suit against a permittee for not complying with its permit when the discharge harms uses, violates water quality criteria or doesn't comply wth anti-degradation procedures (Chapters 2 and 8).

Your State Administrative Procedures Act (if one exists) may be another legal avenue for addressing a standards problem. This approach probably would require the court to determine whether the state's inaction is arbitrary and capricious.

Isn't the EPA supposed to step in if a state doesn't do its job properly?

Yes. There is no better way to make your state take notice of a flaw in its water quality standards than to get the EPA to raise the issue and ask that it be addressed in the state's triennial review. The EPA can and does disapprove state water quality standards – especially when it enjoys strong public support for the needed action. Here again, the role of state public interest organizations is pivotal to garner and demonstrate that public support.

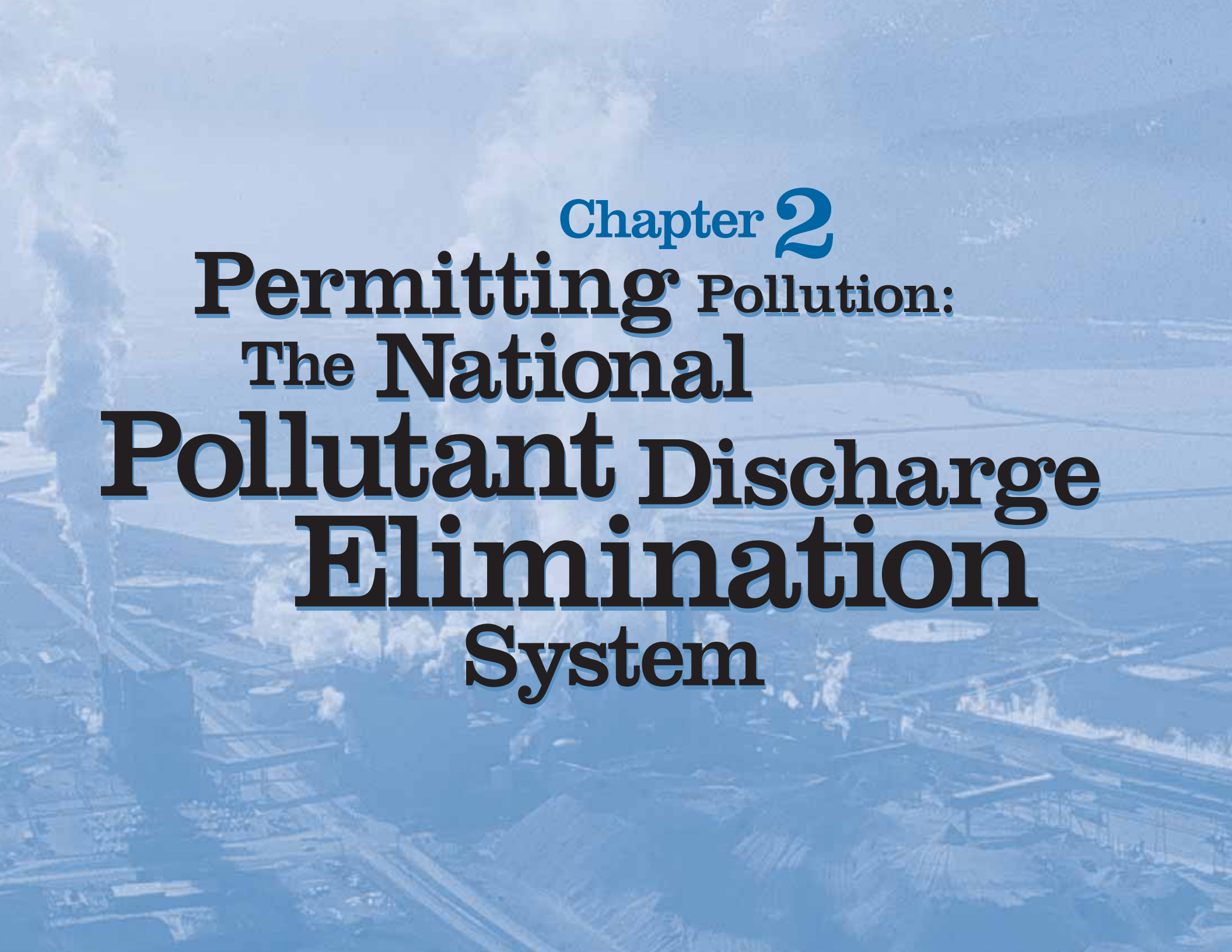
Action checklist

Triennial Review

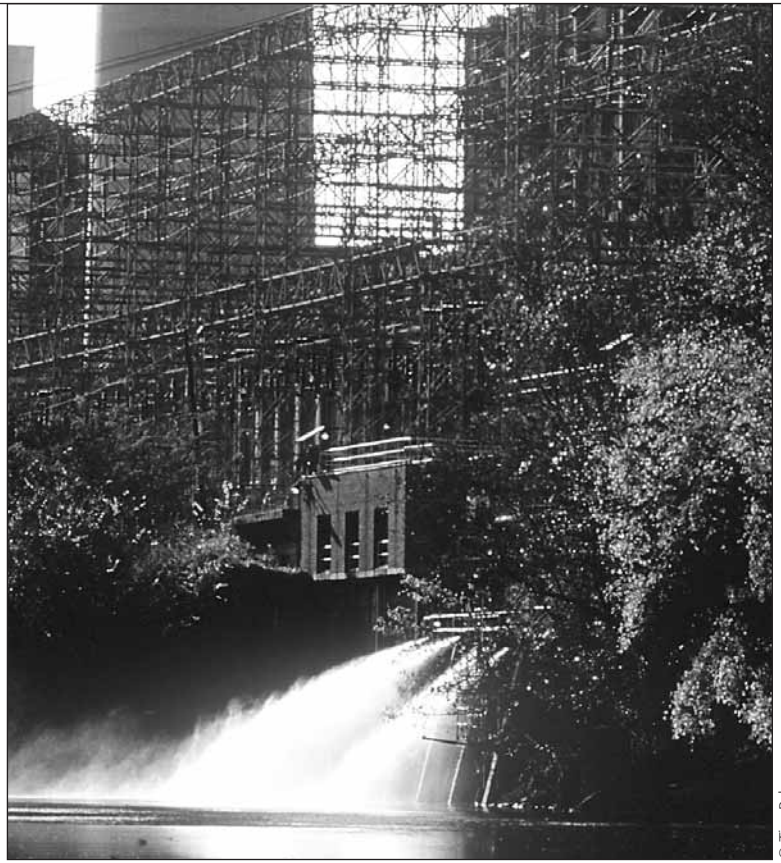
1. Find out when the last triennial review in your state was held and when the next hearing is scheduled to occur. Check River Network's database of state CWA information for your state's triennial review dates (www.rivernetwork.org/cleanwater/cwa_search.asp).
2. If more than three years have passed since the last comprehensive hearing on your water quality standards package, insist that one be scheduled right away.
3. Get a copy of your water quality agency's procedures for participating in the triennial review and/or petitioning for rule changes.
4. Working with other concerned citizens in your area, identify critical water quality standards issues for **your watershed.** For example, identify:
   - any existing uses not protected by designated uses;
   - any waters that are not designated at least for aquatic life and recreation and have never been the subject of a use attainability analysis or have not been considered for upgrade in the last three years;
   - any waters where site-specific criteria are needed; and
   - any outstanding high-quality or ecologically or recreationally significant waters that need and deserve "Tier III" antidegradation protection.

   (See checklists on pp. 24, 33 and 43.)
5. Working with members of other public interest groups, identify **critical statewide issues.** Consider the:
   - definition of state waters;
   - adequacy of the state's basic designated uses and associated water quality criteria;
   - methods used for determining acceptable levels of carcinogens;
   - adequacy of the state antidegradation policy and implementation procedures; and
   - adequacy of water quality standards public involvement procedures.

   (See checklists on pp. 24, 33 and 43.)
6. Determine if any of the above issues must be dealt with before the next triennial review. If so, initiate the change process with a rulemaking petition or some other established public involvement method.
7. Discuss your water quality standards concerns and ideas with officials from your water quality agency and the regional EPA office.
8. Prepare written comments to support your suggestions for changes in advance of the triennial review public comment period.
9. Send your comments to your state agency. Copy them to the EPA. Consider copying them to the press. Share them at community meetings.
10. Notify the press of the date, time, place, nature and importance of the triennial review public hearing.
11. Turn out large numbers of people in support of standards improvements at the triennial review public hearing.
12. If the EPA refuses to take an action that the Clean Water Act says is "non-discretionary," consider more aggressive measures, including issuing a 60-day notice of intent to sue the EPA in federal court.



Chapter 2
Permitting Pollution: The National Pollutant Discharge Elimination System



A power plant on the Chattahoochee River, Georgia.

Permitting Pollution: The National Pollutant Discharge Elimination System

Under the Clean Water Act, all point source discharges of pollution require a permit. This basic principle is the foundation of water pollution prevention and control in the United States. Generally, anyone who discharges pollutants from a point source without a Clean Water Act permit is breaking the law (40CFR122.1(b)(1)). There is, of course, a corollary: it is perfectly legal to discharge pollutants if you have a valid permit and comply with its terms. Understanding how the permitting system works is critical for anyone wanting to use the Clean Water Act.

STATUTE Clean Water Act

The Goal: Eliminate Discharge of Pollutants

In order to achieve the ultimate goal of the Clean Water Act, "to restore and maintain the chemical, physical and biological integrity of the Nation's waters," several other goals and policies, including the following, were established: "it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985" (CWA 101(a)(1).

Digging Deeper

States Where EPA Runs the NPDES Program

The EPA has delegated primary NPDES program responsibility in most states to a state pollution control agency. There are a few exceptions where the EPA retains lead responsibility for developing and/or enforcing NPDES permits. These are Alaska, Idaho, Massachusetts, New Hampshire, New Mexico, the District of Columbia, Puerto Rico, the Pacific Territories and all tribal lands. The Virgin Islands are partially authorized.

REGULATION Clean Water Act

Point Source Pollution

"Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff."

(40CFR122.2)

Citizen involvement is important in all phases of the permit process. You don't have to be a lawyer to make a difference, but you do need to understand the system's basics. By developing a solid grasp of the following terms and concepts, you will be much better able to help prevent and control water pollution in your watershed.

What is a "point source?"

The Clean Water Act's primary point source control program is the National Pollutant Discharge Elimination System (NPDES). This system rests on the definition of point source: **"any discernible, confined, and discrete conveyance"** of pollutants to a water body. The definition of discrete conveyance includes, but is not limited to, **"any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged"** (40CFR122.2).

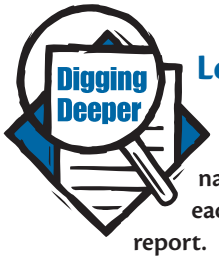
As we will see, the definition of "point source" covers a wide and expanding variety of activities, beginning with direct discharges from factories and sewage treatment plants, and extending to a multitude of other sources. The Act provides one major exception to the point source definition: it specifically excludes "return flows from irrigated agriculture or agricultural storm water runoff" (40CFR122.3). This exempts many but by no means all, agricultural activities from the NPDES program.

Over the years, the EPA has regulated more sources of point source pollution.

For example, in the early years of the Act, municipal stormwater pollution, or "urban runoff," was considered an unregulated, nonpoint source. Much of it is collected in and discharged through stormwater pipes — clearly, in Clean Water Act parlance, "discrete conveyances." The recognition of this fact (thanks to citizen suits in the 1980s) has led to the development of regulations and programs to control many forms of stormwater runoff under NPDES permits (p. 75).

What activities require a NPDES permit?

Major Municipal	includes municipal sewage treatment plants that collect and treat wastewater from both residential and industrial polluters. Major municipal facilities are those with design flows of greater than one million gallons per day or pretreatment programs.
Major Industrial	includes industries that have their own permits and their own treatment works and that do not send their wastes to a municipal sewage treatment plant. Major industrial facilities are determined through specific ratings criteria developed by EPA or the state.
Minor Municipal and Industrial	includes the facilities that fit into the categories above with less capacity and discharge. Minor municipal facilities are those with design flows of less than one million gallons per day (if they do not have pretreatment programs). Minor industrial facilities are defined with specific ratings criteria developed by EPA or the state.
Mines	include coal mines, hard rock mines, gravel and aggregate mines, and other types of mining activities (both above and below ground).
Combined Sewer Overflows	are combined municipal wastewater and stormwater systems that discharge raw sewage when the collection system or treatment plant capacity is exceeded during heavy rainfall.
Sanitary Sewer Overflows	are leaky municipal wastewater systems that can result in raw sewage overflows during heavy rainfall or other times (i.e., mechanical failures).
Stormwater Pollution	includes runoff from industrial sites, construction sites (>1 acre or part of a larger development), streets, roads and any impervious surface in "urbanized areas" greater than 50,000 in population.
Concentrated Animal Feeding Operations	includes large-scale hog, cattle, dairy, poultry or horse farms, among others.



Legal Toxic Discharges

For many years the Environmental Working Group produced a report on the toxic contaminants discharged legally by permitted facilities in each state. Visit www.ewg.org for the latest report.

What is a "nonpoint source" of pollution?

The term "nonpoint source pollution" has been used in many different ways and in many different contexts over the past twenty-five years. Some define it as "polluted runoff from rain or snow," others as pollution from "diffuse sources," and still others, colorfully, as "poison runoff."

The most accurate, complete and enduring definition of the term is the very simplest. A "nonpoint source" is exactly what the words say: any source of pollution that is not a point source. (Refer to Chapter 6 for discussion of the Clean Water Act's nonpoint source management program.)

How has NPDES worked so far? Is it actually eliminating pollution?

The NPDES has greatly reduced the impact of many existing discharges, but it certainly has not eliminated point source water pollution in the United States. In fact, while most pollution discharges have come under greater control since the Act was passed (with a few approaching "zero impact") very few have actually been phased out. Moreover, thousands upon thousands of new discharges — including many with significant impacts — have been permitted.

The NPDES performs admirably in those places where a well-informed public (a) keeps an eye on Clean Water Act goals, (b) monitors watershed activities, (c) understands how the NPDES and other CWA tools are supposed to work together, and (d) plays an active role in their ongoing implementation. In the absence of an ever-vigilant public, however, the NPDES can produce results that are quite the opposite of those intended.

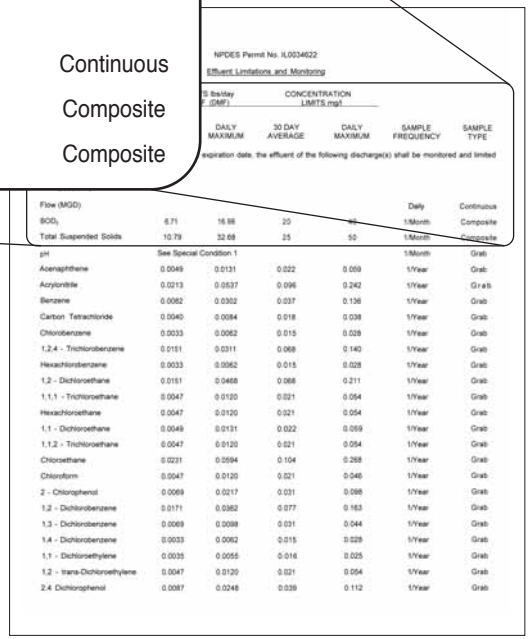
Does the NPDES program address nonpoint source pollution?

Yes, it can. As described above, the term nonpoint source pollution refers to many non-discrete methods of conveyance of pollution into a waterway, such as the water that flows over our city streets, through construction sites, or through industrial complexes. The Clean Water Act allows for regulation of that type of pollution when it ends up in a ditch or a pipe. We define stormwater pollution as a point source because most of it is collected by storm drains, gutters or ditches and sent either through the treatment plants (if the storm system is combined with the sanitary system) or out to the waters directly.

There are ways to address otherwise unregulated nonpoint source pollution with NPDES permit conditions. For example, permits can require certain management practices (e.g., revegetation) at the location of a permitted discharge to address problems in the receiving water body.

We are also seeing another strategy, pollution trading, occasionally built into NPDES permits in order to address nonpoint source pollution. Trading is usually associated with watershed restoration plans (TMDLs) discussed in Chapter 3 (see p. 104).

PARAMETER Outfall: A01	LOAD LIMITS lbs/day DAF (DMF) 30 DAY AVERAGE	LOAD LIMITS lbs/day DAF (DMF) DAILY MAXIMUM	CONCENTRATION LIMITS mg/l 30 DAY AVERAGE	CONCENTRATION LIMITS mg/l DAILY MAXIMUM	SAMPLE FREQUENCY	SAMPLE TYPE
Flow (MGD)					Daily	Continuous
BOD_5	6.71	16.98	20	40	1/Month	Composite
Total Suspended Solids	10.79	32.68	25	50	1/Month	Composite



An example of the effluent limitations page of an individual Illinois NPDES permit

General Principles Applicable to All NPDES Permits

What do permits contain?

There are two types of permits: **individual and general permits**. Each type has different requirements and different public review opportunities.

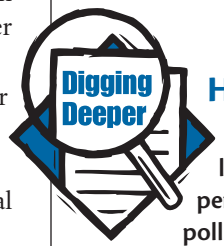
Individual permits

When a facility has its own specific permit, it is called an "individual permit." These permits are site-specific and usually much more detailed than general permits. The pollutant limits may be based on the category of discharge (p. 58) or they may be based on the water quality of the receiving water body (p. 59).

All municipal sewage treatment plants and "major industrial dischargers" must apply for individual permits. States may differ in how they define major industrial dischargers, but their definitions must be acceptable to the EPA.

Individual NPDES permits have many components. Some of the basic elements of a typical permit include:

- **Cover sheet:** This will usually give the best snapshot of the permit. It lists the discharger's name and address, description and location of discharge(s), condition of receiving water body, designated uses, effective date of the permit and its expiration date.
- **Pollutant limits:** These are the "meat and potatoes" of the permit. All pollutants that are controlled or monitored from this discharge must be listed with the associated limits, such as dissolved oxygen ≥ 5mg/L (minimum).



How Are Permit Limits Expressed?

Permits may contain several different types of limitations on a given pollutant. For instance, permits often limit both the total amount of a pollutant (usually in terms of pounds per day) and its average concentration in the wastewater (usually in terms of milligrams per liter) over given time periods. These limits may be expressed in terms of a daily maximum and a monthly average. Permits may also spell out an acceptable range of particular parameters such as pH. To comply, a permittee must keep the discharge within all these limits; exceeding just one constitutes a violation.

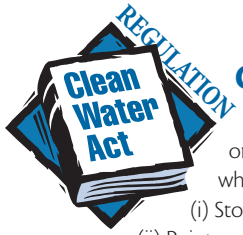
Example of NPDES permit limits

The technology-based standards for wastewater treatment plants (minimum requirements) are called "secondary treatment." It involves the pollution controls listed here.

Typical Municipal Wastewater Treatment Plant

Effluent Limitation, units	Monthly Average	Weekly Average
Biochemical Oxygen Demand (BOD_5)	30	45
Total Suspended Solids, mg/L	30	45
pH	between 6.0 and 9.0	
30 day average percent removal ≥ 85%		

mg/L = milligrams per liter



General Permits

The general permit may be written to regulate one or more categories or subcategories of discharges when they are either:
(i) Storm water point sources; or
(ii) Point sources other than storm water point sources, or "treatment works treating domestic sewage", if they all:

"(A) Involve the same or substantially similar types of operations;

(B) Discharge the same types of wastes or engage in the same types of sludge use or disposal practices;

(C) Require the same effluent limitations, operating conditions, or standards for sewage sludge use or disposal;

(D) Require the same or similar monitoring; and

(E) In the opinion of the Director, are more appropriately controlled under a general permit than under individual permits."

(40CFR122.28(a)(2))

- **Monitoring requirements:** The pollutant limits page will also list the type and frequency of monitoring required for each pollutant or parameter (such as flow). For example, pH monitoring may only be required monthly, whereas, temperature monitoring may be required daily. Occasionally, the pollutant limits page will read only "monitor and report." This may occur when there is uncertainty of the amount discharged and some screening is needed.

- **Fact sheet or rationale sheet:** This section is often a separate attachment with useful detail about the permitted activity. It may include more information about the wastewater treatment process or more about the receiving water body. If the permitting agency properly implements the antidegradation policy, documentation of antidegradation analysis ought to be found in the fact sheet.

- **Other important information:** The permit may also include a) additional annual or semi-annual pollutant screening to identify when new pollutant limits are needed, b) compliance schedules, c) details of the municipal wastewater "pretreatment program," d) instream monitoring, or e) language that prohibits the discharge from contributing to violations of water quality standards.

The permit will usually also have several pages of "boilerplate" language at the end of the permit. In some states this has included requirements for identification tags on every pipe discharging into waters of the state. When reviewing permits, don't skip this language. This section of the permit will often include crucial requirements.

Most importantly, **public notice** of every draft individual permit must be distributed to the interested and affected public. (See page 64 for more detail.) This is your opportunity to review and comment on permits. Get on the mailing list for permits in your watershed. Across the country, several state permitting agencies provide notice of permit **applications** long before the permit is drafted. Once you have developed relationships with agency staff you may get information on permits sooner.

General permits

Most citizens believe that every proposed discharger or regulated activity is specifically examined and that permit requirements are developed with that particular activity and location in mind. In reality, most of the activities permitted under NPDES are covered by general permits.

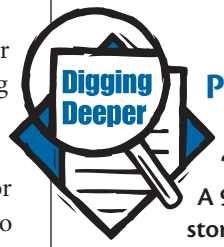
"General permits" are developed for numerous categories of activity within a political or geographic boundary that share similar operations and discharges, require similar limits or operating conditions, and require similar monitoring requirements (40CFR122.28). If the owners of a business believe their enterprise qualifies under an existing general permit category, they can apply to be covered by that permit. They generally do so through an application called a "Notice of Intent" for coverage under the permit. The permitting agency has the authority to decline the application and to require an application for an individual permit. General permits are prevalent for stormwater pollution and concentrated animal feeding operations, which are discussed in more detail starting on page 74.

General permits have two parts to them: **the broader permit** that is developed and renewed every five years, and the **"Notice of Intent"** for coverage under that permit. A general permit can vary considerably depending on what activity is being permitted to discharge. It will have a description of the activities for which the permit applies. It should discuss the potential impacts of these activities and specify when an activity does not qualify for the general permit. For example, if the activity is likely to affect fish when they are migrating or spawning, the permit could limit the timing and duration of the activity. The permit will also have a description of the information needed from every applicant and the compliance requirements. The "Notice of Intent" form that each general permit applicant must submit will often walk through the permit requirements.

General permits usually require **less frequent monitoring and reporting** than individual permits and sometimes none at all. Many general permit requirements are wrapped up in the development and implementation of **management plans** that are supposed to address likely pollution discharge and impacts to designated and existing uses through best management practices. However, these management plans, whether for stormwater or mining or feedlots, are not always required to be submitted to the permitting agency.

General permits are subject to **public notice** and review during the initial development and the regular five-year review of the requirements for all the dischargers in a category. There is limited public and interagency review of each application for coverage under the general permit (notices of intent) throughout the five year period. Bringing up specific concerns during the public review every five years is very important given that many activities (usually without any cap as long as they all meet the requirements) can be included under each general permit. Information on the permittees covered by each general permit is public information and should be available from your permitting agency. If not, consider submitting a "Freedom of Information Act" (FOIA) request to obtain it (p. 67).

If the general permit is not likely to protect the receiving water body, citizens can petition for requirement of an individual permit. An individual permit can be required by the permitting agency when: the discharger is out of compliance, better technology is available, circumstances in the receiving water body have changed so the general permit is no longer protective, or the discharger is a significant contributor of pollutants (40CFR122.28(b)(3)).



Public Review of General Permits

Several states are now making general permit "Notices of Intent" available to the public. A 9th Circuit Court decision regarding municipal stormwater permits requires some form of public review for every stormwater management plan. This decision may lead to greater public review opportunities for all generally permitted activities. (Environmental Defense Center, Inc. v. EPA, 344 F.3d 832 (9th Cir. 2003))

Requiring General Permit to Become an Individual Permit

Any interested person may petition the Director to require any discharger authorized by a general permit to apply for and obtain an individual NPDES permit. "Cases where an individual NPDES permit may be required include the following:

(A) The discharger … is not in compliance with the conditions of the general NPDES permit;

(B) A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants…;

(C) Effluent limitation guidelines are promulgated for point sources covered by the general NPDES permit;

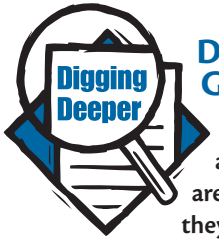
(D) A Water Quality Management plan containing requirements applicable to such point sources is approved;

(E) Circumstances have changed since the time of the request to be covered so that the discharger is no longer appropriately controlled under the general permit, …;

(F) Standards for sewage sludge use or disposal have been promulgated …; or

(G) The discharge(s) is a significant contributor of pollutants."

(40CFR122.28(b)(3))



Does Antidegradation Apply to General Permits?

The regulations require the application of antidegradation to general permits when they are first developed and if they are changed when they are renewed. It will be significantly harder to get a permitting agency to apply antidegradation to each "notice of intent" to be covered under the general permit.

Very few general permits include procedures to protect outstanding or high quality waters. If you believe an activity covered by a general permit is degrading high quality or outstanding waters or harming existing uses and should be subject to an antidegradation review, make the case that the activity requires an individual permit (Chapter 1, p. 35).

How much treatment do permits require?

The level of treatment required of each discharger is determined by the category of discharge and the condition of the receiving water body. Minimum limits established for a category of discharges regardless of their location are called "**technology-based**." Limits driven by the water quality standards and current conditions of the receiving waterbody are said to be "**water quality-based**." In the Clean Water Act's two-part system, each permit must contain limits for each pollutant based on the more stringent of the two types of controls in that particular situation. It is not unusual for a single permit to contain some limits of each type.

"Technology-based" permit limits

Clean Water Act regulations establish minimum pollutant control limits for numerous categories of industrial discharges, for sewage discharges and for a growing number of other types of discharges. Regardless of any site-specific considerations, all dischargers must meet at least the minimum limits that apply to all others in the same category.

These limits are said to be **"technology-based."** In each category, they represent levels of technology and pollution control performance that the EPA expects all dischargers in that category to achieve.

• *Do permits prescribe specific technologies or practices?*

Not generally. A "technology-based effluent limit" (TBEL) is simply a minimum level of performance that the EPA or a state permitting agency has decided must be achieved by dischargers in a given category, regardless of the nature or size of the "receiving water." Decisions about how to best achieve that level of performance are typically left to permitees. Permits **may** prescribe specific point source control practices or technologies, or best management practices for non point sources, but they seldom do.

• *Is the 'Best Available Technology' required?*

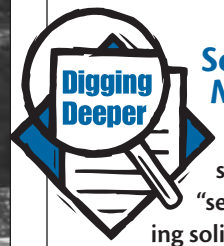
Many people understandably (but incorrectly) assume that technology-based limits represent the current state-of-the-art in pollution control technology. The Clean Water Act called for the technology-based limits to be based on the performance of the "best available technology economically achievable" (CWA, Section 301(b)(2)). This has been described as representing the average performance of the best performers. However, over thirty years after the passage of the Act, individual dischargers often are able to achieve a higher level of performance than what is specified by national technology-based limits. While EPA is continuing to develop technology-based standards for the categories of discharges that don't yet have technology-based limits, the agency has generally not been updating technology-based limits as technology advances.

Green River, Seattle, Washington

Water quality-based permit limits

In many cases, technology-based limits are not enough to protect a receiving water. If the discharge is large or highly concentrated, or if the receiving water is small or ecologically sensitive, the discharge can easily overwhelm the water body unless the discharger does more than simply meet the minimum technology-based limits.

The authors of the Clean Water Act understood that technology-based limits often would not be enough. Rather than discard the pre-1972 "receiving water quality-based" approach, they improved it by requiring that it be used as a backstop to the technology-based approach. **This crucial backstop system requires each discharger to use as much additional treatment as necessary to meet water**



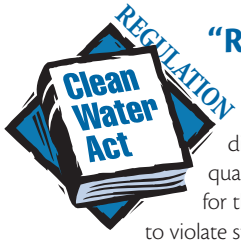
Secondary Treatment for Municipal Sewage

The "technology-based limits" for municipal sewage treatment plants has long been "secondary treatment," which involves screening solids and breaking down about 85% of the oxygen-consuming wastes contained in the typical urban sewage waste stream (see figure on p.56).

This is far more treatment than many cities provided in 1972, but in many cases it is not enough to meet today's receiving water standards. For example, the necessity of meeting receiving water quality standards has led to more stringent permits for many cities. Some permits require more than 98% removal of oxygen-consuming wastes and set limits for additional pollutants that are not specifically included in the secondary treatment (e.g., E.coli or nitrogen). Secondary treatment is a minimum requirement for all sewage dischargers, regardless of the size, characteristics or conditions of the receiving water. However, it is nowhere near "state-of-the-art."

Without Federal Limits – Best Professional Judgment

The EPA has set the minimum technology-based permit limits for many categories of dischargers. However, if there are no national technology-based limits for a particular category of discharger, and if site-specific circumstances don't warrant water quality-based limits, limits are set on a case-by-case basis using the "best professional judgment" of the permit writer.



"Reasonable Potential Analysis"

Permit writers must perform a "reasonable potential analysis" to determine which pollutants in the discharge have a reasonable potential to violate water quality standards. Limits must be included in the permit for those pollutants that do have a reasonable potential to violate standards.

"Limitations must control all pollutants …which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

(40CFR122.44(d)(1)(i))

Discharge Permit Fees

More and more states assess discharge permit fees to pay for the NPDES program. Generally, within a given state, the fees are the same for similar types of NPDES permits.

Some states, such as Indiana, assign fees associated with the volume of discharge. Another option is to link fees to the toxicity of the discharge. This is not currently done in any state. These appoaches can provide incentive to strive toward the Clean Water Act goals of eliminating discharges and prohibiting toxic discharges.

Without fees, the NPDES program is supported by a state's general fund (or the federal budget if EPA runs the program).

quality standards for the receiving water itself.

At first glance, the water quality-based approach looks much like what was in place before 1972. Both approaches were based on assumptions about how much pollution the receiving water can absorb without harm. But the current system, when properly implemented, more clearly specifies how much pollution can be allowed, relies on more protective assumptions, and employs more extensive safeguards.

Water quality-based effluent limits (WQBELs) are often required when an applicant requests a permit for a relatively large-volume discharge to a relatively small stream. They may be necessary when the receiving water is naturally limited in its capacity to absorb pollution, or when a water body already carrying a heavy pollution burden cannot absorb any more without violating water quality standards. As pollution pressures in a watershed increase, permit limits are more frequently driven by water quality standards.

Unlike the minimum technology-based effluent limits that have an economic feasibility component, water quality-based limits are set to assure that water quality standards (uses, criteria and antidegradation) are not violated, regardless of the economic consequences.

Are permit limits for the same type of discharge the same across the country?

Many technology-based permits for domestic wastewater treatment plants or a particular industry are consistent across the country. However, some states (e.g., Tennessee, North Carolina) have set their own minimum technology-based limits that go beyond the federal limits by including additional limits on pollutants such as bacteria and ammonia.

Since state water quality standards can vary tremendously, permits that require water-quality based limits, even for the same type of discharge, will likely vary among states as much as the different state water quality standards do.

Do all discharges meet water quality standards at the end-of-pipe?

Very few limits developed for municipal or industrial waste discharges are the same as the water quality standards for the receiving water. Permit limits are developed based on an assumption that there will be a certain amount of water in the receiving water body to dilute the discharge. In order to protect all existing and designated uses that could be affected by the discharge, if there is very little or no water available for dilution, limits in the permit should be the same as or equivalent to the water quality criteria for each pollutant.

The area of dilution allowed at the end of the pipe is called a "mixing zone."

What is a "mixing zone?"

A mixing zone is a portion of a water body where water quality standards are waived in order to allow for dilution of pollution. Mixing zones are a basic part of many NPDES permits, particularly where dischargers are expected to have difficulty providing enough treatment to meet water quality standards for the receiving water.

In a mixing zone, concentrations of one or more pollutants may be allowed to remain above "chronic toxicity" standards while dilution occurs. In a matter of weeks or even days significant harmful effects to resident aquatic life can occur.

These impacts can include effects on the growth, feeding, reproduction and even survival of organisms in the area. They can also include changes in the food chain and balance of life well beyond the boundary of the mixing zone. Mixing zones may allow discharges harmful to all uses in the water body.

How are "mixing zones" established?

Federal and most state regulations include variances that allow state water quality standards to be violated under certain circumstances. Mixing zones are generally listed as a type of a variance from state water quality standards. Mixing zones are part of most NPDES permits. They may be explicitly described in the permit conditions or they may be assumed by all dischargers based on state regulations or historical practices. All too often there are no restrictions on mixing zones. It is not uncommon to find several overlapping mixing zones that span across a water body and extend downstream for miles. Mixing zones are seldom explicitly described or limited for a) each pollutant, b) each set of uses, or c) specific receiving water body conditions. It is important to insist on a clear definition of any mixing zone and to ask hard questions about its legality and effects.

What is a "zone of initial dilution?"

A "zone of initial dilution," or ZID, is a mixing zone within a mixing zone. In these areas, even more water quality rules are waived. For example, in a ZID, concentrations of one or more pollutants may be allowed to remain above acute toxicity standards. Consequently, ZIDs have been called by some "zones of immediate death," because significant impacts, including death of aquatic organisms, can occur within them in a matter of minutes or hours.

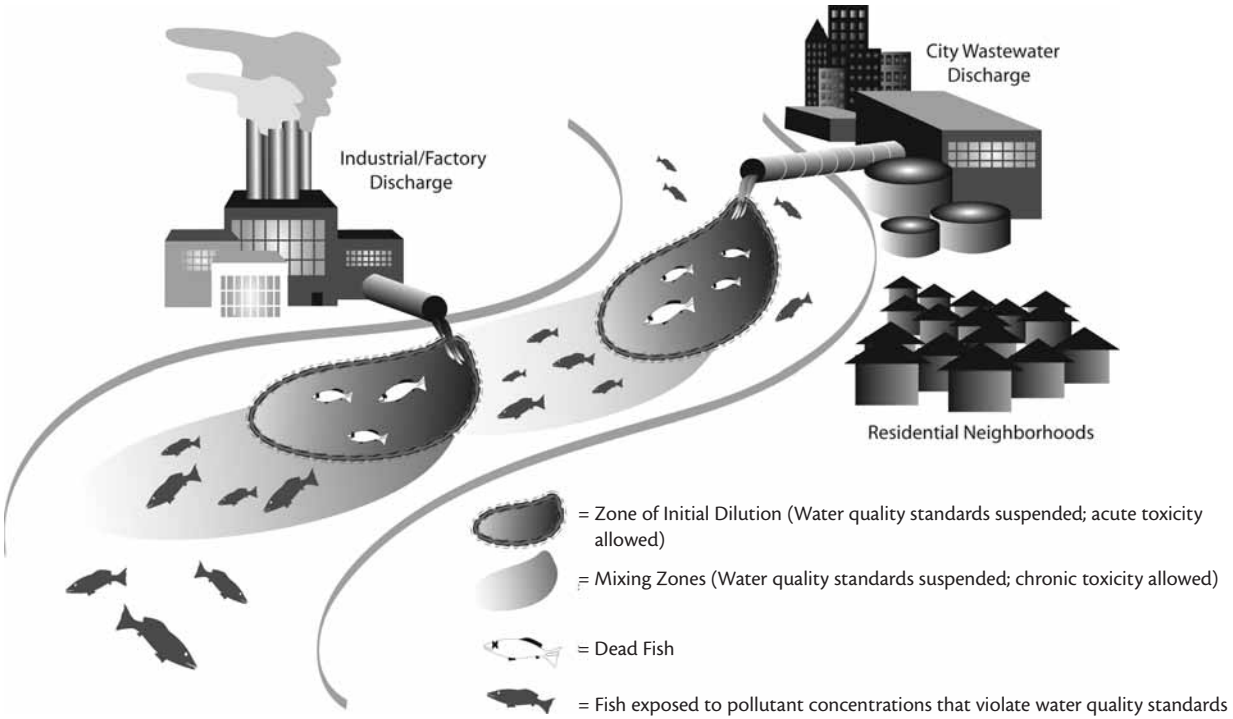
What is EPA's stance on mixing zones?

According to EPA regulation, state mixing zone policies are "subject to EPA review and approval" (40CFR131.13). Unfortunately, EPA provides no guidelines to states for drafting mixing zone rules. Many individuals and public interest groups believe that mixing zones are inconsistent with both the

How to Limit Mixing Zones?

Based on...	Limit could be...
Pollutant of concern	Persistent, bioaccumulative, toxic contaminants; any contaminants for which waters are impaired
Sensitive areas	Threatened and endangered species habitat; swimming areas; waters upstream of water supply intake; Outstanding National Resource Waters
Times of year	Spawning, rearing and migration times for fish; recreation-based; excessive discharge times in vacation communities; low water (contaminant concentrations higher); high water (contaminant loading greater)
Portions of water body	Beyond 25% width of water body and beyond 50 yards downstream

Multiple Mixing Zones



spirit and the letter of the Clean Water Act.

Although the EPA has approved state standards with mixing zone policies of many shapes and sizes, the EPA has understood the importance of limiting or eliminating these areas where water quality standards are not met or enforced. In 2000, the EPA finalized a rule that prohibits new and phases out existing mixing zones for bioaccumulative chemicals of concern in the Great Lakes system (Fed. Reg., 11/13/00, Vol. 65, No.219(67638-67651)). For more information on this rule, visit www.epa.gli/glnpo/bns/index.html.

Who monitors discharges?

Most of the monitoring of permitted discharges is done by permittees themselves. State and federal officials make spot checks (often in response to public concerns or questions), but the vast majority of the information about discharges and permit compliance is compiled and submitted by permittees.

Individual permittees submit monitoring reports to the permitting agency. The Discharge Monitoring Reports (DMRs) are typically due monthly. A failure to report properly and on time is a permit violation.

The permitting agency compiles DMR information and must make it available to EPA and the public. When violations are evident, enforcement actions are in order.

General permits usually do not have similar monthly reporting requirements, but they may have other requirements such as annual reporting.

How long do permits last?

The Clean Water Act calls for permits to be reviewed, adjusted as necessary and renewed **at least every five years.** Far too often, however, the permit cycle is much longer than this. Delays in

reviewing, adjusting and renewing permits are usually attributed to limited agency funding and staff.

Over the life of a typical permit, the outfalls, the pollutants discharged and the monitoring can change in many ways. The receiving water body can also change significantly. Changes in land use can alter the types and amounts of runoff. Structural modifications to rivers and streams can alter the rate at which pollution is transported and the degree to which it is assimilated. All watershed factors, as well as any revisions in water quality standards or watershed pollution limits, should be taken into account when permits are reviewed, modified and renewed.

Mixing Zone Policies Survey

For the results of a 2001 survey of state mixing zone policies, visit http://www.earthisland.org/c-saw/csawmzsurvey.pdf.

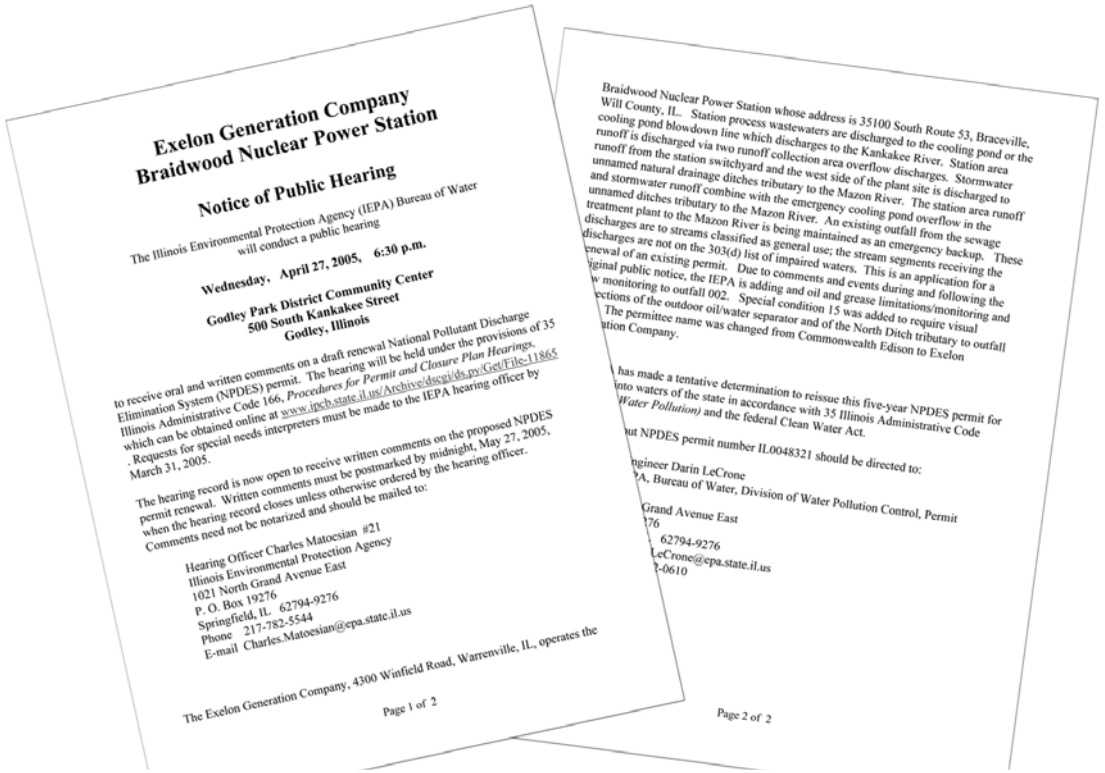
The Campaign to Safeguard America's Waters (C-SAW) is working to address mixing zone issues.

- For a primer on mixing zones and the Clean Water Act and a mixing zone manual, visit http://www.earthisland.org/c-saw.
- For an action guide and more information contact C-SAW, P.O. Box 956 Haines, AK 99827; Phone/Fax: (907) 766-3005; E-mail: gershon@aptalaska.net

✓ Action checklist

Mixing Zones

1. Get a copy of your state's mixing zone rules.
2. Find out if any mixing zones are proposed or have been permitted in your watershed. Get copies of any proposed NPDES permits that allow mixing zones and comment on them in writing and at public hearings.
3. If mixing zones have already been permitted, find out when the NPDES permits allowing them are due for renewal and prepare to submit comments. Identify actual and potential impacts of the mixing zones on uses in the watershed.
4. Discuss with state and EPA officials any concerns you have about mixing zones (such as cumulative impacts of several mixing zones in your watershed, impact on sensitive uses (i.e., threatened and endangered species), bioaccumulative pollutants, or mixing zones that are not spelled out in permits).
5. Consider building a coalition of public interest organizations to document the statewide impacts of mixing zones and to call for tightening of your state's mixing zone rules and implementation procedures.



Exelon Generation Company
Braidwood Nuclear Power Station

Notice of Public Hearing

The Illinois Environmental Protection Agency (IEPA) Bureau of Water will conduct a public hearing

Wednesday, April 27, 2005, 6:30 p.m.

Godley Park District Community Center
500 South Kankakee Street
Godley, Illinois

to receive oral and written comments on a draft renewal National Pollutant Discharge Elimination System (NPDES) permit. The hearing will be held under the provisions of 35 Illinois Administrative Code 166, *Procedures for Permit and Closure Plan Hearings*, which can be obtained online at www.ipcb.state.il.us/Archive/dscgi/ds.py/Get/File-11865. Requests for special needs interpreters must be made to the IEPA hearing officer by March 31, 2005.

The hearing record is now open to receive written comments on the proposed NPDES permit renewal. Written comments must be postmarked by midnight, May 27, 2005, when the hearing record closes unless otherwise ordered by the hearing officer. Comments need not be notarized and should be mailed to:

Hearing Officer Charles Matocsian #21
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P. O. Box 19276
Springfield, IL 62794-9276
Phone 217-782-5544
E-mail Charles.Matoesian@epa.state.il.us

The Exelon Generation Company, 4300 Winfield Road, Warrenville, IL, operates the

Page 1 of 2

Braidwood Nuclear Power Station whose address is 35100 South Route 53, Braceville, Will County, IL. Station process wastewaters are discharged to the cooling pond or the cooling pond blowdown line which discharges to the Kankakee River. Station area runoff is discharged via two runoff collection area overflow discharges. Stormwater runoff from the station switchyard and the west side of the plant site is discharged to unnamed natural drainage ditches tributary to the Mazon River. The station area runoff and stormwater runoff combine with the emergency cooling pond overflow in the unnamed ditches tributary to the Mazon River. An existing outfall from the sewage treatment plant to the Mazon River is being maintained as an emergency backup. These discharges are to streams classified as general use; the stream segments receiving the discharges are not on the 303(d) list of impaired waters. This is an application for a renewal of an existing permit. Due to comments and events during and following the iginal public notice, the IEPA is adding and oil and grease limitations/monitoring and w monitoring to outfall 002. Special condition 15 was added to require visual ections of the outdoor oil/water separator and of the North Ditch tributary to outfall The permittee name was changed from Commonwealth Edison to Exelon ation Company.

has made a tentative determination to reissue this five-year NPDES permit for nto waters of the state in accordance with 35 Illinois Administrative Code *Water Pollution)* and the federal Clean Water Act.

ut NPDES permit number IL0048321 should be directed to:

ngineer Darin LeCrone
PA, Bureau of Water, Division of Water Pollution Control, Permit
Grand Avenue East
76
62794-9276
LeCrone@epa.state.il.us
2-0610

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Influencing the Permit Process

The Clean Water Act provides for public comment and involvement in the NPDES permitting process. You will find several different formal opportunities for input, as well as a number of more informal opportunities.

It is essential to comment on NPDES permits in detail during the narrow (usually 30-day) public review period. If you decide to appeal (or otherwise contest) a permit decision to the agency or before a judge, you can usually raise only those issues that you raised during the initial public comment period. Therefore, if you do not have time to elaborate on an issue or concern during the public review period, it is important to at least raise it at that time. If you do go to court later, you may have to show that you have "exhausted all administrative remedies" for addressing your concerns.

The only times you can comment on general permits is when they are first developed (before any actual dischargers are applying for coverage) and every time they are up for renewal (which should be every five years). Even though general permits address the majority of activities covered under NPDES, once a general permit is finalized, the public is usually not given any notice or opportunity to comment on each particular activity or discharge submitted for "coverage" under that permit. Therefore, public comments on general permits may have to be based on hypothetical

Even though general permits address the majority of activities covered under NPDES, once a general permit is finalized, the public is usually not given any notice or opportunity to comment...

scenarios. Imagine the worst-case scenario when commenting on a general permit. How might an activity allowed under this general permit violate water quality standards? You can and should document the adverse impacts of general permitted activities. Such documentation can be used to improve the general permit or require individual permits in certain cases.

How do I prepare for NPDES permit review?

1) **Learn which permits have already been issued, or are proposed, for your area of interest** — a stretch of your river, your whole watershed or your entire state. Your state agency and regional EPA (when the program is not "delegated" to the state) can provide this information. The Web may be a valuable source of information about discharge permits in your state (sidebar at right).

2) **Get on the mailing lists for public information.** There should be a public notice that announces the public comment period when any new or renewing permit is drafted. Many states now post public notices on their websites. You may be able to request notification when permits in your watershed are under consideration. However, many states don't tailor their public notice lists.

3) **Find out ahead of time when permits are due for renewal** (theoretically every five years), or when new ones are open for public comment. Public comment periods are usually only 30 days, but you may be able to request an extension from the agency. Give it a try! Every day counts when you are trying to address a technical or legal question and build public awareness and support for your position.

4) **Collect current state standards and data** such as state water quality standards, the water quality inventory for your state (305(b)) and the threatened and impaired waters list (303(d)).

5) **Set up a monitoring program.** Design a monitoring program that fits your resources and answers your questions (Chapter 11, p. 203). If your questions include whether a facility is in compliance with its permit or whether a discharge is harming a water body (even if it is in compliance), you can monitor upstream and downstream of the discharge as well as in any defined mixing zone at the point of discharge. You don't necessarily have to collect detailed scientific data. Watershed residents can provide valuable information about water quality problems to the agency and the permittee by paying attention to, documenting and reporting visual changes in the receiving water body. For example when is the water muddy? What species of fish and wildlife are present? What is noticeable downstream of each point source? If you can follow your state's monitoring requirements, any data you collect will be more credible in the eyes of the water quality agency.

Required in public notice:

- Name & address of discharger
- Permit number
- Receiving waters
- Location of all discharges
- Issue date, effective date, modification date (if applicable), expiration date (40CFR124.10 (d))
- Public hearing (if one has been scheduled)
- Where to get the permit and related information

Likely in public notice:

- Compliance history
- Applicable water quality standards, TMDLs, 303(d) listings

State Permit Contacts

Permit contacts for each state can be found on River Network's state Clean Water Act database. (http://www.rivernetwork.org/cleanwater/cwa_search.asp)

Permit Compliance System

Information on permits and related compliance at a facility should be available from your state agency. In addition, more and more permits can be found in EPA's Permit Compliance System online database (www.eps.gov/pcs).

What to Examine in a Permit

Whenever possible, compare a draft permit to the previous permit.

- **Cover sheet**

Review the discharger's name and address, discharge locations, receiving water body(ies), and dates of expiration, modification and effectiveness.

- **Quality of receiving water(s)**

If the permit doesn't describe the uses and condition of receiving water bodies, use the water quality standards, 305(b) report, 303(d) list, any TMDLs or other information in the file to determine the condition of the water (Chapter 3).

- **Pollution (effluent) limits**

Generally, no "backsliding" or weakening of existing permit limits is allowed (CWA Section 402(o)). Compare the receiving water standards with the limits in the permit. If they don't match, there should be some discussion in the permit about a mixing zone.

- **Flow of receiving water**

Is there enough flow to handle the pollution? What are the dilution assumptions behind the permit limits?

- **Mixing zone(s)**

Because mixing zones and variances suspend the limits in the permit, it is important to understand exactly the extent (over time and space) of these allowances.

- **Antidegradation analysis**

If the permit will allow new or expanded discharges, an antidegradation analysis should be performed and the findings should be summarized in the permit or in the fact sheet. Look for any reference to antidegradation.

- **Monitoring plan and reporting requirements**

It is important to examine the location, type and frequency of monitoring activity.

- **Management plans**

Stormwater permits, concentrated animal feeding operation permits and mining permits will be based mostly on management plans that describe best management practices.

To best review a draft permit, what information should I collect and review?

Regardless of whether a permit is new, modified or simply being reissued without any modifications, you will need most of the same information. More and more permits are available online, but the whole permit file is unlikely to be on the web.

Draft permit and old permit (if applicable)

It is most important to find out what is changing in the new permit. Be sure to ask for the permit application and the fact sheet (sometimes called the rationale sheet); they both will include valuable information often not in the permit itself. (See sidebar for detail on reviewing permit.)

Discharge monitoring reports (DMRs) – monitoring by permittee submitted monthly to agency

You should review as many of these reports as you can get your hands on. Compare the reported levels of the pollutant with the limit in the permit. Do you see any violations? There is a column in DMRs to report exceedances of the limit. Sometimes reports with violations will be submitted and the agency will not notice them.

Summary of information on receiving waters

To understand the quality of the receiving waters, you should ask for and review anything that is in the permit file on the receiving waters that may have been used to develop the permit limits. If there is nothing apparent, ask the agency what they used to assess the quality of the receiving water. On your own, you can track down and review the state's water quality standards, the biennial water quality report to Congress (305(b) report, which must include the impaired waters list (303(d) list, Chapter 3)), the list of protection and restoration plans (TMDLs, Chapter 3), any fishing or recreation guides that may be published, drinking water protection plans, wild and scenic designations, etc.

Antidegradation analysis

Does the draft permit propose a discharge increase in any way? That would be the case for all new permits and at least the renewing permits for which a) the volume is proposed to increase, b) the limits are weaker, c) the timing of the discharge is longer, d) there is an additional outfall, e) the mixing zone is larger or f) fewer management practices are required. Request the antidegradation findings (which may be summarized in the permit) and the documentation of the analysis.

The status and adequacy of antidegradation policies and implementation procedures vary considerably across the country (Chapter 1, p. 35).

- **Discharger's past performance**

  Look for "notices of noncompliance" or "notices of violation" in the permit file. If the permit is new, ask the agency about other permits held by the same entity.

- **Potential for water quality violation**

  Look for a required analysis of the likelihood that the discharge will contribute to a violation of water quality standards (called a "reasonable potential analysis," sidebar p.60). A summary of the findings may be in the permit fact sheet.

- **Correspondence file**

  Correspondence between the agency and the discharger and even among agency staff can be very enlightening and helpful in your review.

- **Response to comments from last permit renewal (if applicable)**

  Concerns will often be raised during the comment period but not addressed during the finalization of the permit. By reading the comments and responses, you can find out additional information about problems caused by the discharger and ways that the agency proposed to address those problems. Assess whether the steps described in previous responses to comments have been taken.

Where can I find all this information?

Once you find out about an application for a permit or a draft permit that you want to review, you will need to request information from the permitting authority. In most states, it is the state water quality agency. Where EPA issues permits (New Hampshire, Massachusetts, Idaho, Alaska, New Mexico, U.S. territories and tribal lands), you would contact your regional EPA office.

You may be able to request the information over the phone. Some states will actually send you copies of the documents! But in many cases, you will need to make an appointment to go in to the appropriate agency office and review the permit file. Most states have established a process for requesting public information. In any case, you may also use the federal "Freedom of Information Act" to obtain important documents (sidebar at right). Be sure to ask how much copies will cost and, if you are a nonprofit organization, mention it. Citizens in Tennessee were subject to charges of 50 cents per page until they forced a change. Costs per page are now at a more common 10 cents per page.

When is it important to ask for a public hearing?

The Clean Water Act guarantees you the right to a public hearing before a NPDES permit is issued (CWA, section 402(a)(1)). It is not likely that agencies will hold a public hearing on a permit unless

Getting the Documents You Need

All of the materials discussed in this chapter are supposed to be made available to the public. States vary considerably in their willingness to provide access to and copies of permits and their supporting documentation.

Examples around the country range from Illinois, where they send draft permits to interested citizens by mail, to Alabama where citizens must pay 25 cents to copy each page, to San Francisco where the water quality agency allowed the Baykeepers to bring in their own copier. You have the right to review these documents. Your state may have open records laws or you may need to use the federal Freedom of Information Act to get the documents you need. For instruction on using the Freedom of Information Act, visit www.spj.org/foia.asp and go to the sidebar on p.194.

people request one, however. Some states require a certain number of requests before they will grant a hearing. The occurrence of permit pubic hearings varies from state to state.

Detailed information on the permit may be provided at a public hearing. Sometimes questions will be answered for the public. It can also be a valuable forum for making your concerns known to people other than your state agency, such as other interested citizens, decision-makers and members of the press. Many states hold hearings during the comment period. If any issues arise at the hearing, the comment period should allow sufficient time for the public to respond.

What if I know of unpermitted point source discharges?

Citizens should be ever alert to unpermitted discharges in their watersheds. Many point source discharges remain undetected and unpermitted. In many rural (and even not-so-rural areas) "straight pipes" carry wastewater from individual homes directly into water bodies.

Regular visual surveys of the rivers and streams in your watershed in wet and dry times of the year may reveal significant sources of pollution that can and should be quickly addressed. What otherwise might appear to be a stormwater discharge pipe, may discharge during dry times of the year if an illicit connection from a home, business or factory has been made. Detecting illicit discharges is one of the minimum measures required by the municipal stormwater permits (p.78).

By bringing unpermitted discharges to the attention of your water quality agency, you can stop the discharge or force the discharger to obtain a permit and apply the necessary controls and treatment. In many watersheds, illicit discharges are a problem that can be solved through citizen awareness and information sharing. If not, unpermitted discharges are vulnerable to citizen suits (Chapter 8).

What if the agency issues the permit regardless of my concerns?

The steps to appeal an issued permit vary from state to state. There may be a limited time window for your appeal so be sure to ask the agency what the process is right away. If it appears likely that the permit is going to be issued, it wouldn't hurt to ask about the appeal process even before it happens. That way, you have time to prepare whatever documentation and support (technical or legal) that you might need for the process.

In many states, the appeal first goes through an administrative process, such as a hearing before an administrative law judge or the board that oversees the agency. If that process is unsuccessful, state court (or federal court when EPA issues the permit) is usually the next step in the process. Some states require the appeal to be taken directly to court. It is important to determine whether the permit is valid or suspended while the appeal is on-going to avoid the construction of facilities or additional discharge that may ultimately be disallowed.

Public Involvement in the Permit Process

1 BEFORE THE PERMIT IS DRAFTED

- **Get on mailing list.** The state agency must notify the public when a new permit is drafted or an existing permit is renewed.
- **Talk with agency staff.** If you inform state agency officials about your interest in new permits in your watershed, you are more likely to find out about new permits while they are being drafted. Ask regularly about new or renewing permit applications in your watershed.
- **Understand standards.** Identify uses and related criteria in your watershed. Find out what the antidegradation policy and procedures are.
- **Map the municipal and industrial point source dischargers** in your watershed. This can be a very useful tool in public hearings.
- **Collect monitoring data and information** about water quality above and below point source discharges.
- **Investigate alternative technologies** or practices. Look for ways to reduce wastewater discharges and promote the reductions in the permitting process.

New permit applications are received.

Permits come up for renewal.

2 WHILE PERMITS ARE BEING DRAFTED

- **Share information.** Provide agency staff with data on your watershed and information about alternative technologies. Present any monitoring data you have.
- **Request information on permit development.** How will the agency be addressing impaired waters, TMDLs in place, and antidegradation analysis? Can the public be involved?
- **Encourage consideration of other priorities** in your watershed, such as protecting endangered species, drinking water sources, instream flows, wetlands and riparian areas.
- **Meet with dischargers.** Bring your information to and raise your concerns directly with the dischargers. They may be more willing to address concerns in the development or renewal of the permit rather than through appeals or court challenges.

Draft permits are issued — official public comment period begins.

3 AFTER PERMITS ARE DRAFTED

- **Obtain and examine the draft permit.** By the time a permit is put together and released, it is usually quite hard to change it. It is still important to examine the pollution limits, monitoring and reporting schedules, antidegradation review, special conditions and exceptions to the permit (especially with respect to existing stream conditions), other pollution contributions and downstream uses.
- **Request a hearing.** A public hearing may not automatically be scheduled for a draft permit. If the draft permit will negatively affect the quality of the receiving waters, it is important to request a hearing and bring data, documentation and as many people as possible to the hearing.
- **Develop comments.** With or without a hearing, it is important to organize your concerns into concise written comments. Participation in this part of the administrative process is critical to any administrative or court appeal of the permit.

Revisions (if any) are made; the final permit is issued.

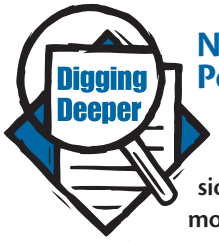
4 AFTER THE FINAL PERMIT IS ISSUED

- **File administrative appeal.** In many states, if you are unhappy with the final permit, you may file an administrative appeal with the permitting agency. If your appeal is denied, you can pursue the matter in court. State procedures for appeal vary considerably. Find out what is allowed in your state.
- **Monitor the river and report problems.** Technically, there will not be another window for public input until the permit is renewed in another five or so years. However, in the course of regular monitoring of the river, it is important to report problems in the river as they relate to regulated discharges and to request inspections of the discharge. They can be used to modify the permit before it is up for renewal.
- **Request inspections** of dischargers if standards are exceeded in the receiving water.
- **Request permit renewals** at least every five years in your watershed.

Administrative appeals

Court challenges to permit issuance/adequacy*

* Court challenges of agency permit decisions address permit adequacy and are the last stop for concerns about a permit. These challenges are different from citizen suits which are enforcement actions to address permit CWA violations and EPA inaction (Chapter 8).



No "Backsliding" in Renewed Permits

Weakening effluent limits is known as "backsliding." According to the anti-backsliding provisions, no permit may be renewed, reissued or modified "to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit."

Backsliding is generally illegal under the Clean Water Act, but there are circumstances where it may be allowed by law such as:

- **when a facility must expand in order to increase production or to increase the population it serves and no viable alternative exists, or**
- **new information is available or mistakes were made in issuing the permit.**

None of the exceptions are allowed, however if they would not meet technology-based limits or would violate water quality standards.
(CWA, Section 402(o))

Discharges Causing or Contributing to Standards Violations

No new permit may be issued "to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards."

(40CFR122.4(i))

Cause for modification of permits

Any NPDES permit (including a "general permit" that applies to many similar dischargers) may be re-opened for modification (1) if there are significant alterations to the permitted facilities, (2) if new information about the effects of the permitted discharge (including cumulative effects) have become available or (3) if any regulations upon which the permit was based have been changed or superceded.

(40CFR122.62(a))

Is it possible to change the terms of an existing permit?

Once a permit is granted, it is tough to change it. However, permits can be reopened if facilities or regulations change or if new information on the adverse effects of a permitted discharge becomes available (sidebar at left). If it is not possible to reopen the permit mid-cycle, continue to build your case for when the permit comes up for renewal.

Problems in the receiving stream should be documented and reported to the agency. If the water body is placed on the impaired waters list, and the discharge is contributing to the problems, the restoration plan (TMDL) for those problems must require changes to the permit (Chapter 3), and that requirement can result in early revisions to the permit as well.

What if conditions required in a permit are not implemented?

A failure to comply with permit requirements is a violation of the Clean Water Act subject to enforcement and fines (see below). Fines can be and have been assessed when required activities have not been faithfully implemented.

Citizens can help identify violations by serving as an agency's eyes on the watershed. Be aware of permit conditions that require certain practices, and check periodically to make sure that they are being followed. If you see that a permit condition is not being met, document the problem and report it to your water quality agency. If necessary, citizens can also instigate enforcement of permits through citizen suits (Chapter 8).

How are NPDES permits enforced?

Violations of NPDES permits can be enforced in three different ways: through 1) an agency's **civil enforcement** actions (including administrative penalties), 2) **criminal prosecution** and 3) **citizen suits**. Permit enforcement actions can be triggered in a wide variety of circumstances. Some result from inspections, others from a review of the discharge monitoring reports submitted by an NPDES permittee and still others from complaints filed by citizens or current or former employees.

Civil Enforcement

Where the EPA delegates the NPDES permitting program to a state environmental agency, it also delegates primary civil enforcement responsibilities. When permits are violated, agencies base decisions on whether and how to pursue enforcement action on at least three factors: the violator's culpability or mental state, the extent of environmental harm caused by the violation, and the economic benefit the violator gained through its failure to comply with the law.

When a state agency documents a violation, it is supposed to issue a notice of noncompliance

(NON) or notice of violation (NOV) to the violator. The most common civil enforcement action is the issuance of a civil penalty. The Clean Water Act provides for penalties of up to $32,500 per violation per day. In addition to imposing penalties, an enforcement authority may also:

- require immediate actions to correct the violation;
- require documentation of future compliance;
- order facility operators to cease operations until problems are fully addressed;
- revoke the discharger's permit; or
- refuse to renew a permit.

Criminal Prosecution

The Clean Water Act and state water quality statutes also contain criminal penalties for certain violations. Criminal prosecution is reserved for severe violations, but it is being used increasingly throughout the country. Criminal violations are prosecuted by United States Attorneys, State Attorneys General or local District Attorneys in the county in which the violation occurred.

In determining whether to prosecute criminally, most investigators and prosecutors look to whether the violation was committed intentionally (a "knowing" violation) or negligently, and whether the violation resulted in damage to the environment. However, a violation need not be intentional to be subject to criminal prosecution. Nor must the extent of environmental damage necessarily be proven.

The most common criminal cases involve discharging without permits, bypassing pollution control equipment or falsifying discharge monitoring reports submitted to the states or the EPA. Corporations as well as individuals may be criminally prosecuted. Criminal penalties may include substantial monetary fines as well as significant terms of imprisonment for individuals found guilty.

Citizen Suits

The Clean Water Act also grants private citizens the right to take independent enforcement actions for permit violations. Any person or entity that is or may be adversely affected by a permit violation may bring suit against the entity causing it (Chapter 8).

Penalties for NPDES Violations

The Clean Water Act provides for substantial penalties for NPDES permit violators. They are summarized below:

	Penalty	Maximum prison term
Any permit violation	up to $32,500 per day	
Any *negligent* violation	$2,500 - $32,500 per day	1 year
Second *negligent* violation	up to $50,000 per day	2 years
Any *knowing* violation	$5,000 - $50,000 per day	3 years
Second *knowing* violation	up to $100,000 per day	6 years
Knowing violation that places a person in *imminent danger* of death or serious bodily injury	up to $250,000 for a person up to $1 million for an organization	Up to 15 years
Second conviction for knowing violation causing *imminent danger* of death or serious bodily injury	up to $500,000 for a person up to $2 million for an organization	Up to 30 years

Source: 40CFR122.41(a)

Action checklist

Pollution Discharge Permits

1. Request a list of all permits (individual and general) in your area of interest.
2. Choose the permits you wish to evaluate and ask for the permit, fact sheets, antidegradation analysis (if it isn't in the fact sheet), discharge monitoring reports (for individual permits) and any notes from the file.
3. Gather information on water quality standards (uses and criteria), current conditions in your watershed (i.e., is it listed as threatened or impaired?), and antidegradation policy and procedures for your state.
4. Get on the mailing list for public notices and hearings associated with new and renewing permits. Limit these announcements to your watershed if possible. Ask when each permit in your basin is due for renewal.
5. Find out how frequently your water quality agency verifies Discharge Monitoring Reports.
6. Find out how your agency monitors and enforces required management practices, especially for stormwater permits (p. 75).
7. Investigate pollution prevention alternatives that should be considered when permits are due for renewal.
8. Find out what types of general permits have been developed by your state agency and how many of each type have been issued in your watershed. Get a list. Ask how these general permits are issued, monitored and enforced.
9. Find out whether and what enforcement actions have been taken against permit violators in your basin.
10. Determine how to challenge a permit after it is issued. Is it an administrative appeal to the state agency or is it a court challenge?

Minimizing Pollution, Making NPDES Permits Work

By combining persistence, a good antidegradation policy, direct discussions with permit holders, and a little creativity, Illinois conservationists have found that NPDES and antidegradation really can work.

After successfully pressing Illinois to adopt strong antidegradation regulations, the Illinois Chapter of the Sierra Club, Prairie Rivers Network and Environmental Law and Policy Center were determined to ensure that the antidegradation policy achieved its purpose of maintaining healthy streams. These groups, in concert with several local watershed organizations around the state, began objecting to and requesting public hearings on each new or expanding discharge that did not demonstrate full compliance with the new regulations.

Northern Moraine Waste Water Treatment Plant

Specifically, advocates challenged dischargers, including the operators of many sewage treatment plants, to carefully consider and select less polluting alternatives to ensure that new pollution would be minimized. Several communities were interested in exploring alternatives informally with advocates rather than engage in lengthy hearing processes and potential permit appeals. In fact, some communities appreciated the perspective offered by conservationists and agreed that better protections for local streams were feasible and well worth the effort.

As a result, numerous communities have agreed to install more sophisticated treatment systems that minimize phosphorus pollution, and some have decided to divert a portion of the treated wastewater for irrigation rather than discharge directly to local waters.

Some communities have looked beyond their discharge pipes to adopt better protections for their local streams through stronger local ordinances. Because these permitting discussions between conservation advocates and dischargers have been so successful, many dischargers are consulting with Prairie Rivers Network, Sierra Club and Environmental Law and Policy Center before submitting permit applications for new or expanded discharges. The outcome is repeatedly a win for the conservationists, the dischargers and most importantly, the rivers of Illinois. ◆

For more information contact Cindy Skrukrud with the Sierra Club (cskrukrud@earthlink.net).

© Tim Palmer

Harris feedlot east of Coalinga, California

Broader Application of NPDES Permits

There are many ways the NPDES principles described in the preceeding pages are applied today. The NPDES permits issued for discharges other than municipal or industrial wastewater generally rely on best management practices to control the discharge of pollutants.

How are Concentrated Animal Feeding Operations (CAFOs) addressed?

The trend toward large-scale livestock operations where poultry, hogs and cattle are concentrated in small feeding areas has created significant water quality problems in hundreds of watersheds around the country. Very high levels of nitrogen, phosphorous and bacteria have led to severe ecological and human health problems.

Concentrated animal feeding operations (CAFOs) require NPDES permits, as stated directly in the regulatory definition of point source pollution on page 52. The Clean Water Act has always recognized large-scale feedlots as point sources of pollution, but control of feedlot pollution has come slowly.

Concentrated Animal Feeding Operations

For current information on CAFO status and requirements, visit

- **Natural Resources Defense Council (http://www.nrdc.org)**
- **Sierra Club (www.sierra club.org)**
- **EPA (www.epa.gov)**

(http://cfpub.epa.gov/npdes/afo/info.cfm)

CAFO are larger animal feeding operations (e.g., greater than 1000 cattle) or medium animal feeding operations (e.g., 300-999 cattle) with a "discharge" (through a pipe or animals in contact with water) or smaller animal feeding operation that have been designated by the permitting authority (40CFR122.23(b)(1)).

State CAFO programs vary widely in approach and effectiveness. Most rely on general permits that, once developed, allow little or no opportunity for public review or comment on each specific facility that applies for coverage. Monitoring and reporting requirements for general permits are usually minimal and lack specificity.

Under federal regulations, CAFO permits now require the development of a Nutrient Management Plan. Due to a federal court ruling on the regulations, the plan must be included in the permit, and it must be subject to public notice and comment. The permittee must develop the Nutrient Management Plan consistent with state technical standards which include "best management practices" and limits on land application rates for animal waste.

As of April 2005, all states are required to have permit programs set up to address regulated CAFOs, and all regulated CAFO operators are supposed to apply for coverage under that program. Not many states have fully developed their program, and therefore, not many operators are applying for coverage.

How is storm water pollution covered by NPDES permits?

Storm water carries polluted runoff from streets, rooftops, parking lots, industrial facilities and construction sites into water bodies. This major source of pollution has attracted much more attention lately, and controlling stormwater pollution is critical to improving and maintaining water quality in the most populated areas and rapidly developing areas of the country.

The 1987 Amendments to the Clean Water Act set the process of controlling stormwater pollution into motion. The changes were developed and instituted in **two phases**.

In the early 1990s, **"Phase I"** required cities with populations over 100,000, industrial facilities, and construction sites five acres or greater in size to obtain a NPDES permit. These regulations, which depended primarily on stormwater management plans, have driven major urban stormwater control programs in the largest cities during the past decade.

In March of 2003, **"Phase II"** regulations kicked in, which required all communities within "urbanized areas" with at least 50,000 people to apply for a NPDES stormwater permit. "Urbanized areas" were determined by population and density (based on the 2000 census), and they include some communities that are much smaller than 50,000 people (p. 77). In addition, Phase II requires permits for any construction activity that disturbs one acre or greater (p. 84), and it has significantly expanded the number of industrial categories that can claim exemption from stormwater regulations (p. 82).

Concentrated Animal Feeding Operations

As with all permits, it is important to get on the mailing list for public notice of proposed permits. See page 64 for general ideas on permit review. For CAFOs in particular, it is important to review and ask questions about the following items:

- *Is there a permit program in place?*
- *Have all regulated CAFOs applied for coverage?*
- *How will the individual or general permit address the quality of each receiving water?*
- *Is there a TMDL in place or in progress?*
- *What is the method for requiring an individual permit if the general permit is not sufficient to protect water quality?*
- *Are there changes from the previous permit (if applicable)?*
- *How can you get a copy of the Nutrient Management Plan? (Should be part of new permit application.)*
- *What best management practices will be employed and by when?*
- *What types of monitoring and reporting are required?*

Evolution of Stormwater Control

In the early 1970's, the EPA took the position that discharges from urban stormwater pipes could be exempted from permit requirements by regulation. The Natural Resources Defense Council (NRDC) disagreed, sued and won. The court ruled that all point sources needed permits, but it wrote that the EPA could cover minor sources with "general permits." (NRDC v. U.S. EPA)

The 1987 amendments to the Clean Water Act made regulation of stormwater discharges from a "pipe, ditch or discrete conveyance" a priority. The revised statute required the EPA to issue stormwater permitting regulations but allowed them in phases, beginning with the most populous cities, significant industries and larger construction sites. (Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C. Cir. 1977))

Stormwater Contacts

Visit www.stormwater authority.com for vast amounts of information on stormwater. In particular, you will find summaries of and links to every state's stormwater program and regulations at www.stormwaterauthority.com/regulatory_data/default.aspx.

Are stormwater programs the same from state-to-state?

The EPA has set some minimum federal requirements for all municipal, industrial and construction stormwater pollution permits and programs. However, these requirements do not include technology-based effluent limits similar to those that are in municipal and industrial wastewater discharge permits (p. 58). Instead, they rely a) on stormwater management plans to identify best management practices that will reduce stormwater pollution AND b) full implementation and monitoring of those practices. Without specific, required limits, state permits vary widely across the country. States may impose stricter rules and tighter timetables for compliance, and some states have. For example, California, Washington, Vermont and Oregon are all moving their municipal and industrial stormwater permitting programs ahead thanks to citizen action. Wisconsin included specific limits in its draft construction stormwater permit, but the permitting agency is unsure whether and how they will be met. Michigan and Oregon have issued permits that require watershed-based coordination for controlling stormwater pollution.

Who must get a stormwater pollution control permit?

Stormwater permits are required for two major categories of stormwater pollution: **municipal and industrial.** Within each category are several distinctions. **Municipal stormwater permits** are broken down by population. Large and medium cities were required to manage their stormwater in the early to mid-1990s. In March 2003, smaller urbanized areas were incorporated into the stormwater program. **Industrial activity** is broken down into eleven categories (sidebar p. 82). **Construction activity** is one of those categories. It warrants particular attention because separate NPDES permits are required for construction sites one acre or greater to control erosion and sedimentation.

Municipal Stormwater Permits

Medium and large separated storm sewer systems (MS4) – Phase I

In the early 1990s, in response to a lawsuit, U.S. EPA developed the stormwater program requirements for urban areas with population greater than 100,000. Because it was the first step to address stormwater runoff, it has been called "Phase I." This program applied primarily to major cities across the United States. However, these permits have often included smaller communities within an urbanized area, the county government surrounding the city proper, and state and municipal departments of transportation as co-permittees. In some places, the permit is held by a stormwater utility whose jurisdiction covers multiple municipalities.

These individual permits require development of management plans and ordinances to control pollution in stormwater runoff from the urbanized area.

River Network Collection

Vancouver, Washington

Stormwater management plans and programs must meet the statutory requirement of "reducing pollutants to the maximum extent practicable" (MEP) (CWA, Section 402(p)(3)(B)(iii)). Specifically, the medium and large municipal separated storm sewer systems areas need to identify and control major stormwater discharges to rivers, lakes and streams, non-stormwater discharges to the stormwater system, pollutants coming from industrial, commercial and residential areas, and discharges from construction (at least one acre in size) within the urbanized area. They also must carry out inspections and monitoring necessary to determine compliance (40CFR122.26(d)(2)(i)).

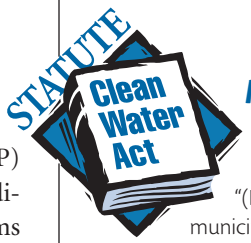
At the time of publication, many of these Phase I permits are or soon will be up for renewal. With each renewal, permittees, states and citizens have the chance to evaluate the effectiveness of the previous permit.

Small Municipal Separated Storm Sewer Systems (MS4) - Phase II

By March 2003, all communities within urbanized areas with a population of 50,000 or more and at least 1000 people per square mile were required to submit applications for stormwater permits. This has been called "Phase II" of the stormwater program. These urbanized areas were defined by the 2000 census. States are also supposed to evaluate whether urbanized areas with a population between 10,000 and 50,000 need to be covered by stormwater NPDES permits. Some communities have sought individual permits, but most are covered by a state general permit. Communities with a population less than 10,000 can be required to obtain a permit if the agency determines it is necessary to do so to protect receiving waters from stormwater pollution. In addition to municipalities, MS4s include all hospitals, schools, universities and other districts that maintain a stormwater system within an urbanized area.

The Phase II requirements are characterized by "six minimum measures" (40CFR122.34). All entities regulated under Phase II must develop a plan and programs to address the following:

- **Public education and outreach on storm water impacts**
  Small MS4s are required to develop and disseminate education materials that will raise the public awareness about what stormwater pollution is, what the causes are, and how individual responsibility can reduce it.



Municipal Stormwater Permit Requirements

"(B) Municipal discharge - Permits for discharges from municipal storm sewers -

(i) may be issued on a system - or jurisdiction-wide basis;

(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and

(iii) shall require controls to reduce the discharge of pollutants to the **maximum extent practicable**, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."

(CWA, Section 402(p)(3)(B))

Common Best Management Practices to Control Municipal Stormwater Pollution

Visit EPA's website (http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm) to find out more about common and cutting-edge best management practices such as street sweeping, vegetated swales in parking lots and roof gardens.

You can find references to BMP manuals across the country at http://ndep.nv.gov/bwpc/bmp02.pdf.

To review Washington state's evaluation of stormwater BMPs visit www.ecy.wa.gov/programs/wq/stormwater/index.html.

- **Public participation and involvement**
  Small MS4s are required to establish meaningful opportunities for the public to be involved in the development and implementation of the stormwater management plan that addresses where they live and work.

- **Illicit discharge detection and elimination**
  Some stormwater pollution problems are caused by non-stormwater discharges into the storm drain system. All permittees must immediately establish a program for identifying illicit discharges and taking steps to eliminate them.

- **Construction site storm water runoff control**
  Within the urbanized area, a program to reduce pollutants from any land disturbance one acre or greater (or if part of a one acre or greater common plan) must be developed, implemented and enforced by the permittee. This means that in addition to getting a permit from the state (or NPDES authority), the operator of the construction site must also comply with ordinance(s) developed at the municipal, county or district level that dictate how the activity can occur. This is intended to give municipalities regulatory control over these significant contributions to stormwater pollution in the urbanized area.

- **Post-construction storm water management in new development and redevelopment**
  Planning maintenance of property after construction is complete is critical in controlling construction stormwater pollution. Attention to post-construction controls and maintenance is generally NOT addressed in the **permit** program for construction sites. Small MS4s must develop a plan and ordinances to address the post-construction pollution problems on every construction site within the jurisdiction that is one acre or greater (or part of a one acre or greater common plan).

- **Pollution prevention/good housekeeping for municipal operations**
  All small MS4s must develop a plan and a program to manage their regular duties in ways that prevent future contributions of stormwater pollution into the system. Examples might include developing policies about hazardous waste management at city maintenance facilities, pesticide and fertilizer use in city parks, establishing green roofs on municipal buildings, and proper stormwater management at municipal construction sites.

These requirements are essentially included in the expectations for the large and medium-sized (Phase I) communities as well, but they are not spelled out this clearly. Notable differences between the Phase I and II requirements include that the Phase I communities must address industrial sources of stormwater pollution within their stormwater service area and generally that greater inspection and monitoring is required.

Municipal Stormwater Management Plans

		Elements in Plan	Source
Phase I	For medium and large MS4s, stormwater management plans are supposed to map out how the stormwater program will meet the standard of "reducing pollutants to the Maximum Extent Practicable (MEP)," including measures to:	• Identify major outfalls and pollutant loadings; • Detect and eliminate non-stormwater discharges to the system; • Reduce pollutants in runoff from industrial, commercial and residential areas; and • Control stormwater discharges from new development and redevelopment areas.	For more information on Phase I requirements, visit the EPA website (http://cfpub2.epa.gov/npdes/ stormwater/lgpermit.cfm).
Phase II	For small MS4s, stormwater management plans are expected to address the six minimum control measures:	• Public Education and Outreach • Public Participation/Involvement • Illicit Discharge Detection and Elimination • Construction Site Runoff Control • Post-Construction Runoff Control • Pollution Prevention/Good Housekeeping	For more information on Phase II requirements, visit the EPA website (http://cfpub2.epa.gov/npdes/stormwater/permreq.cfm).

The implementation of these plans, including using appropriate stormwater management controls or best management practices, is supposed to involve measurable goals and evaluation and is expected to result in significant reductions of pollutants discharged into receiving water bodies.

Are Phase II communities within urban areas expected to work together to fulfill the stormwater requirements?

In some states, neighboring jurisdictions are working together and may apply to be co-permittees in order to achieve the six minimum measures. It can be particularly advantageous when the communities within a watershed are all working together (Local Story on p. 81).

Stormwater utilities may be set up based on political or watershed boundaries and assigned responsibility for meeting the six minimum measures within that service area. If individual communities within the utility boundary are not co-permittees, agreements should be set up with the stormwater utility to establish responsibilities for meeting the permit requirements.

Do Phase I (medium and larger) and Phase II (smaller) communities work together?

This varies from state to state. Some states are changing the Phase I permits to match more closely with the Phase II six minimum measures, keeping in mind that the Phase I urbanized areas have additional requirements regarding industrial facilities and may have more specific monitoring and reporting requirements.

Other states are renewing Phase I permits without making them more like the Phase II permits. Some smaller communities have examined whether to be included as co-permittees of the neighboring Phase I permits as they are renewed, but that can result in the smaller communities having more requirements than the Phase II general permits would otherwise assign to them.

✓ Action checklist

Municipal Stormwater

- **Contact your city, town or stormwater utility about stormwater planning and management; ask to be involved. Public involvement is required!**
- **Ask your city how the stormwater management plan will reduce the discharge of pollutants "to the maximum extent practicable." How does it prevent contribution to existing stormwater pollution problems (or fit into approved TMDLs, Chapter 3, p. 99)? How does it protect high quality waters (Chapter 1, p. 35)? Do the plans include implementation commitments, timetables and budgets?Are they measurable and enforceable? Do they include monitoring and opportunities for revisions to the controls before the next permit cycle?**
- **Large and medium city (Phase I): ask about permit renewal. Review stormwater management plan and monitoring; what has been accomplished during the permit period? Does it need to be revised and strengthened?**
- **Small city/town/district/hospital (Phase II): ask how each of the six minimum measures (p. 77-78) are being addressed.**
- **Find out what public education or involvement is planned or going on. Can your group help? Does the city want to pay your group to help? (See Local Story)**
- **Ask your stormwater authority (town, city, county, utility) how they will address post-construction stormwater impacts. How will they coordinate with the construction stormwater permits?**
- **Talk with the city and state planning departments about stormwater requirements. Have they been communicating with the stormwater authority regarding land use planning, zoning and requirements for stormwater management?**

The Watershed-Based Approach to NPDES Phase II Compliance

The 760-square-mile Clinton River watershed, containing portions of more than 60 communities and inhabited by over 1.4 million people, is the most populous watershed in Michigan. The 80-mile-long main branch of the Clinton River boasts a surprisingly healthy riparian corridor and supports a successful trout fishery. The river drains into Lake St. Clair, a major drinking water supply and recreational resource for the region.

More than 40 municipalities, four counties, and dozens of school districts and other public entities in the Clinton River watershed must comply with the storm water discharge permit requirements of the National Pollutant Discharge Elimination System.

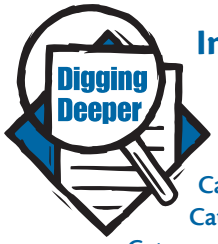
In Michigan, the small storm sewer systems that were first regulated in March 2003 had the option of selecting the standard general permit designed for particular jurisdictions (municipalities, counties, school districts), or they could apply for what is known as the "watershed-based" permit, an alternative permit developed by the Michigan Department of Environmental Quality (MDEQ). The permit requires communities that share a subwatershed area to work together to develop and implement plans and programs for storm water pollution control. This collaborative approach allows for greater flexibility than the standard general permit in selecting and applying best management practices tailored for the subwatershed, in the hopes of achieving water quality improvements in a cost-effective and efficient manner.

In the years leading up to the March 2003 deadline for small communities to apply for permits for their stormwater pollution, the Clinton River Watershed Council (CRWC), the Macomb County Public Works Office, the Oakland Country Drain Commissioner's Office and the Southeast Michigan Council of Governments (SEMCOG) collaborated to assist Clinton River communities in choosing between the jurisdictional and watershed-based permits. CRWC, the counties, and SEMCOG helped form six subwatershed planning groups. All 43 small communities subject to the new stormwater requirements eventually selected the watershed-based permit option. The most important factor in their decisions was the opportunity to leverage limited resources to achieve water quality improvements.

The subwatershed groups present a unique opportunity for the communities to work together on public education activities, as well as several others. The group structure allows the municipalities to share information, resources and costs while providing consistent education messages. In response to community requests, CRWC developed a package of services collectively called the Stormwater Action Program to assist the permittees in meeting their storm water permit public education requirements. The Stormwater Action Program was marketed as a package to each of the six subwatershed groups, with each community paying their share of the program costs. The services are provided to each subwatershed group as a whole. This structure allows the dozens of participating entities to share CRWC's staff and resources and to provide a consistent watershed-wide education program without hiring or contracting for their own individual education programs.

In light of the so-called "unfunded mandate" imposed by the new requirements on smaller storm water systems, the watershed-based approach is seen by the participating communities as an opportunity to leverage resources to achieve real improvements in water quality in the Clinton River watershed. ◆

For more information contact the Clinton River Watershed Council (www.crwc.org).



Industrial Stormwater Categories

Category One (i): Facilities with effluent limitations
Category Two (ii): Manufacturing
Category Three (iii): Mineral, Metal, Oil and Gas
Category Four (iv): Hazardous Waste, Treatment or Disposal Facilities
Category Five (v): Landfills
Category Six (vi): Recycling Facilities
Category Seven (vii): Steam Electric Plants
Category Eight (viii): Transportation Facilities
Category Nine (ix): Treatment Works
Category Ten (x): Construction Activity
Category Eleven (xi): Light Industrial Activity

(40CFR122.26(b)(14)(i)-(xi))

Industrial Stormwater Requirements and Recent Case Law

• For industrial requirements visit the EPA website: http://cfpub.epa.gov/ npdes/stormwater/icovered.cfm.
• For recent industrial stormwater permit court decisions and settlements contact: San Diego Baykeeper (www.sdbaykeeper.org) regarding California, Puget Soundkeeper (www.pugetsoundkeeper.org) regarding Washington, Conservation Law Foundation (www.clf.org) regarding Vermont, and Northwest Environmental Defense Center (www.nedc.org), regarding Oregon.

Industrial Stormwater Permits

Stormwater carries pollutants to the storm drains, dry wells or directly into receiving waters. Industrial settings can be particularly vulnerable to unintended transport of hazardous pollutants into surface waters. As part of Phase I of the stormwater program, in addition to the requirement that large and medium MS4s must regulate industrial stormwater pollution within their jurisdiction, eleven industrial categories were required to obtain permits for their stormwater pollution.

While you may not consider your watershed to have "industrial" activities or pollutants, close review of the list of categories (sidebar at left) reveals several very common activities found in urban as well as suburban or rural settings including landfills, salvage lots and trucking facilities.

What are the requirements for controlling industrial stormwater pollution?

When possible, states prefer to include industrial stormwater requirements in existing NPDES wastewater permits. Requirements related to industrial stormwater management are often written into the narrative section of a wastewater permit following the effluent limits. In most cases, the stormwater-related section describes the stormwater management plan that must be developed. It might also describe some monitoring or reporting requirements. Industrial stormwater monitoring and report-

ing requirements are generally not as specific nor as frequent as the "Discharge Monitoring Reports" for wastewater NPDES permits described earlier in the chapter.

An industrial activity which doesn't already have an NPDES permit for wastewater discharge, such as an auto salvage lot, will need to seek an individual permit or apply to be covered under the state's industrial stormwater general permit. Both options will require a stormwater management plan, which may or may not have to be submitted to the state. It should require monitoring and reporting. Court decisions in southern California have led to more monitoring and reporting for industrial facilities. A Vermont court decision requires that all industrial activity within five impaired watersheds seek stormwater permit coverage. Citizen action in Washington and Oregon has led to improved shipyard stormwater management (see sidebar at right for references).

What is the "no exposure exclusion?"

If a facility that is included under one of the ten non-construction industrial categories can demonstrate that no chemicals or pollutants of any sort are "exposed" to stormwater, it can be exempted from the industrial stormwater permitting requirements. At the time of Phase I, the facilities that could apply for this exemption were limited to the "light industry" category, but with Phase II, all industrial categories, except for construction, can make their case for "no exposure." States address this process in different ways. Some simply require an application, and other states, such as Pennsylvania, require an on-site inspection before the exemption is granted.

Industrial "No exposure" Exclusion

"'No exposure' means that all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product."

(40CFR122.26(g))

✓ Action checklist

Industrial Stormwater

Ask about the "industrial" sites in your watershed that are exposed to stormwater, especially salvage lots or landfills.

- **Do these sites have wastewater NPDES permits? If so are the stormwater requirements included in their wastewater NPDES permit?**
- **Is the site covered under a general permit?**
- **Has the site applied to be "excluded" from requirements because they claim to not be "exposed" to stormwater? Has the state inspected that claim?**
- **Has the facility developed a stormwater management plan? Has it been filed with the state? Is it available onsite? Get a copy and review it.**
- **Does the permit, the Notice of Intent or the stormwater management plan account for waters that are polluted already, waters with TMDLs (Chapter 3) or high quality waters? Causing or contributing to problems justifies individual permits, numeric effluent limits and/or permit denial.**

Construction Stormwater Requirements

Visit the EPA website at www.epa.gov/npdes/stormwater/const.cfm.

Watershed-based Construction Watchdog Programs

Groups around the country have developed citizen guides to help identify erosion and sedimentation problems and functioning erosion control techniques.

The upper Chattahoochee Riverkeeper, based in Atlanta, Georgia, has developed a citizen's field guide that illustrates both good and bad examples of erosion control techniques and tells users how to report problems. (www.getthedirtout.org)

Tualatin Riverkeepers, based west of Potland, Oregon, calls their program "Muddy Water Watch." (www.tualatinriverkeepers.org)

The West Virginia Rivers Coalition also has a Watershed Permit Assistance Program that will help citizens keep construction site mud out of streams. (www.wvrivers.org)

Ohio Environmental Council has developed a Guide to Erosion Prevention and Sediment Control. (www.theoec.org)

Poor construction practices in a new subdivision near Oliver Creek in Tennessee.

Construction Stormwater Permits

Construction is one of the eleven categories of industrial activity that were regulated at the time of the 1987 amendments to the Clean Water Act. This category deserves special attention because polluted runoff from construction sites is such a major problem in so many watersheds across the country, and because EPA has required specific NPDES permits for construction activity.

In Phase I, only construction sites five acres or larger were required to be covered by a NPDES permit. With Phase II, as of 2003, any disturbance of one acre or greater, or even a site less than one acre if it is part of a development plan that will disturb one acre or greater, is now regulated. The permitting authority can also regulate any construction site regardless of its size if there is a potential for the disturbance to contribute to a violation of a water quality standard or to significantly contribute pollutants to waters (40CFR122.26(b)(15)(ii)).

Who is in charge of the construction stormwater permitting process in each state?

Many states already have erosion and sedimentation control programs, and the state construction stormwater permits are usually coordinated with those programs. The same entity responsible for administering the existing program, such as the county, often takes over the responsibility for granting coverage under the general construction stormwater permit. The state agency, or the EPA in states that don't have permitting authority, retains oversight authority over the general permits. The state usually retains control over any individual construction stormwater permits.

What is required at each construction site?

In most states, regulated construction activity is covered through a general permit. The site operator must file a "Notice of Intent" (NOI) with the permitting authority before disturbing any earth. Generally, the NOI form requires information about the location of the site, controls planned and sometimes, the name of the receiving stream. Most construction stormwater permits do not require pre-construction monitoring, yet this step is critical in determining whether the controls are working during construction.

Federal requirements do not require specific pollution limits for construction sites. Instead they focus on the preparation of a stormwater pollution prevention plan for each site. Most state construction stormwater permits depend on stormwater management plans that describe the erosion and sedimentation controls that will be put in place during construction. The plan may or may not have to be submitted to the permitting authority before construction has begun, though it would be a good idea. The plan should at least be on site, and it must be available to the public.

The construction stormwater program is not only about getting a permit and preparing a stormwater management plan. The controls identified in the plan need to be implemented, the effectiveness of the controls needs to be monitored, and changes to the plan and the controls need to be made when they are not adequate to protect waters. There should be a timeline for the implementation of the controls explaining how they will change as the project progresses. Once construction is completed, the operator must submit a "Notice of Termination" (NOT). The NOT form usually requires at least a signed statement claiming that the site has been stabilized. The definition of "stabilized" may be different in every state, however. Some states, including Pennsylvania and Wisconsin, have included requirements for post-construction planning and agreements before the NOT can be submitted.

An individual permit is warranted under certain circumstances, such as when threatened or endangered species are present or when there is potential for the discharge to cause or contribute to violations of the water quality standards (69Fed.Reg.39,087,39,089(July1, 2003)).

States can impose more stringent requirements than federal rules require, including specific

Construction Stormwater Mangement Plans

Regulations for construction stormwater management plans may vary from state to state. They should include:

- **Site evaluation and design development**
- **Assessment of site**
- **Stormwater management**
- **Control selection/plan design**
- **Certification/notification**
- **Construction/Implementation**
- **Final stabilization/termination (including maintenance and inspection procedures)**

Visit the EPA website for more detailed instructions (http://cfpub.epa.gov/npdes/stormwater/swppp.cfm

Common Best Management Practices to Control Construction Stormwater Pollution

What should you see when you drive by a construction site? Sediment fences, bio filter bags around the storm-drain, facilities for washing off vehicles before they drive off site?

For a list of common controls and how they should be applied, visit EPA's website on best management practices for construction sites: http://cfpub.epa.gov/npdes/stormwater/menuof-bmps/con_site.cfm.

For an evaluation of construction stormwater BMPs; visit: www.ecy.wa.gov/programs/wq/stormwater/index.html.

pollution limits. For example, Wisconsin's draft construction stormwater permit requires an 80% reduction of the sediment running off a construction site (on an average annual basis) when compared to a site with no pollution controls. In Michigan, permits are required for any construction within 500 feet of a stream or a lake, regardless of the size of the disturbance. Since many state construction stormwater permit programs are based on a sedimentation and erosion control program already in place, it is important to make sure that the program at least meets the federal construction stormwater NPDES requirements (sidebar p. 84). The existing program may not be sufficient.

Unfortunately, county, state and federal agencies simply do not have enough people or money to inspect every permitted site each time it rains. In fact, many states' inspection processes are entirely complaint-driven. Citizen information about the pollution controls on and impacts of construction sites during rain storms can improve compliance with the program.

How can I be sure that uses are protected and the current condition of the waters are not worsened?

All construction sites are new sources of pollution. Whether they are covered by a general or an individual permit, it is important that the construction stormwater permit requires documentation of the current condition of the waters receiving the impact of the activity and the designated uses and the relevant criteria for those waters. If there is any existing impairment, make sure the agency (and/or the permittee) demonstrates and documents how this activity will not "cause or contribute" to it (p.70, 40CFR122.4(i)). Where water quality is better than basic water quality standards would require, an antidegradation analysis is necessary (and should be documented) to protect that quality to the greatest extent possible (Chapter 1, p. 35).

How can I improve construction site compliance in my watershed?

Watershed groups can now do much more than they could just a few years ago to help prevent and control polluted runoff from construction sites. Learn what permits have been issued in your watershed and what each permit requires. Keep an eye on active sites for compliance, and notify the permitting authority when problems are suspected or detected.

When the construction is completed, the site should be stabilized. Ask the state whether responsibility for maintaining the longer term sedimentation and erosion controls has been documented. Not many states require that as part of the construction stormwater permit, but all municipalities covered under the Phase I or II permits must be responsible for post-construction controls within their jurisdiction.

Action checklist

Construction Stormwater

- Contact your state water quality agency about construction stormwater permits. They may refer you to a county authority.
- Find out what individual and general construction stormwater permits are active in your watershed, or pick a site and ask questions about the specific permit and stormwater management plan.
- Are the requirements in the state general permit sufficient to protect the uses in your watershed? Do the permittees have to provide enough site specific information and develop a stormwater management plan before they begin construction?
- Are the stormwater management plans submitted to the county or state? How can the public review them?
- Does the general permit take into account the receiving water's characteristics? Is an individual permit needed to address existing pollution or sensitive uses? Can you make the case for numeric effluent limits due to existing pollution or sensitive uses?
- Keep an eye on active sites to see whether the management practices are put in place and whether they are working. Is there a negative downstream impact that can be attributed to the site? Is the facility monitoring the effectiveness of the controls in place? Can you monitor the receiving water body?

Tips for Testifying at Public Hearings

The Clean Water Act requires officials to solicit and consider public opinions before making decisions about permits, water quality standards and many funding programs. In addition to inviting written comments, agencies often hold public hearings before making key decisions. Hearings are most often held when the issue at hand is particularly important or controversial.

Most citizens rarely attend these hearings, believing that they are not qualified to comment on "technical issues." Others regularly attend and speak out but are frustrated that their efforts don't seem to have an impact.

This is unfortunate, because everyone's views should count. Here are a few tips to help make sure that your comments at hearings make the most impact:

1. **Get information early.** Comment periods are short, so every day counts. Make sure you are on the mailing lists for the permits, programs and issues you care about most.
2. **Do some homework.** Read the draft permit or proposed action carefully, including the fine print. Make a list of your questions and concerns, and prioritize them.
3. **Discuss your concerns.** Don't wait until the hearing to discuss your concerns with officials. Call or meet with one or more of them early. They may put some or all of your concerns to rest. They will probably appreciate your effort to discuss concerns with them in advance.
4. **Develop written comments.** Well in advance of the hearing, begin developing some written comments. This will help you organize your thoughts about what you want to say. Your written comments can be detailed; in them, you can cover matters that would be too lengthy or technical to address in your oral comments.
5. **Find out when the comment deadline is.** The deadline for comments is usually a few days after the hearing. If it is, you may want to wait until after the hearing to finalize your written comments. It is likely you will obtain new information, develop new concerns or come up with new ideas at the hearing.
6. **Get the word out.** A large turnout of concerned citizens gives more power to your arguments and shines the light of public concern on the issue.
7. **Ask good questions.** Asking good questions is often as much or more effective than making statements. Many clean water decisions boil down to judgment calls. Asking questions about legal gray areas and areas of scientific uncertainty can help decision-makers decide either to seek more information or to err on the side of caution. When developing final written comments, however, turn the question into a statement of concern.

8. **Make it substantive.** As much as possible, base your comments on matters of fact, not opinion. Decision makers may consider your opinions, but they have to consider your facts. Reference specific portions of the law and regulations when possible and cite sources of your information. This increases your credibility and gives decision makers the legal and technical grounds to do what you request.

9. **Mix it up.** It's fine for some testimony to come from the heart and other testimony to come from the head. Encourage those who share your concerns to present heartfelt testimony about their love for the resource. Such testimonies, combined with factual and science-based testimonies, are a powerful combination.

10. **Boil it down.** Decide which points are essential to your case for the public hearing. Figure out how to express them as clearly and concisely as possible. State your concern and what you want. Remember that your audience is not just the agency officials present, but also the other members of the public. Avoid jargon that only the agency officials would understand.

11. **Spread it around.** Realize that you may only get two or three minutes to speak. If your essential points can't possibly be made in a short time, find some friends and assign some of the points to them. This increases your effectiveness by getting more people involved and makes it more likely that all the essential points will be raised.

12. **Emphasize key points.** Some redundancy can be good. Consider summarizing your key points at the beginning or end of your statement. Don't forget to tell them what you want them to do.

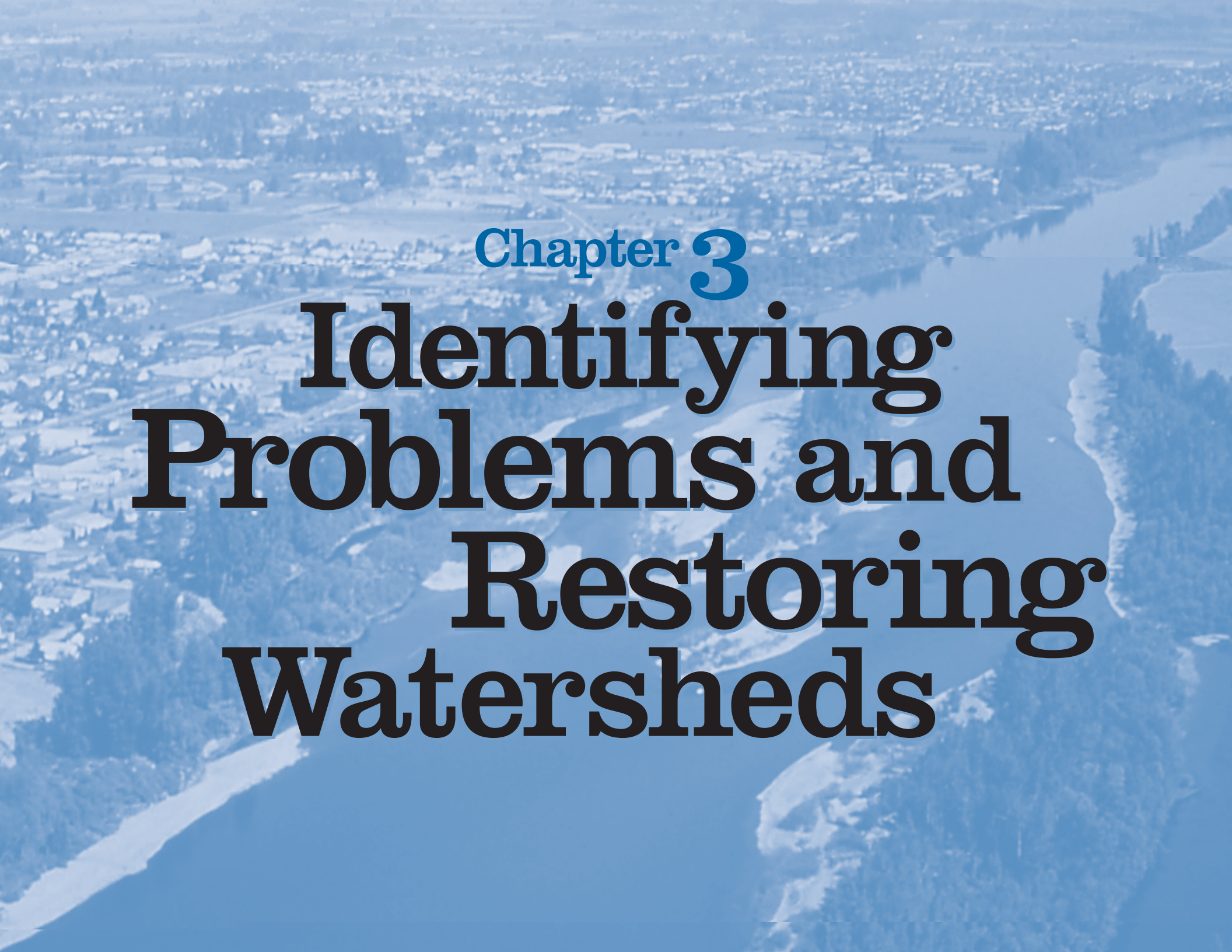
13. **Write it down.** Even if you are submitting written comments later, and even if you don't intend to read your statement word for word, write down the basic comments you intend to make at the hearing. Separate the points by headings so they are easy to follow and refer back to. This strategy will help you organize your thoughts in advance, and it will give you something to hand out at the hearing, share with the media or reprint in your newsletter.

14. **Submit your written comments on time.** If you decide to back up your verbal comments with more detailed written comments, make sure you get them in on time.

Writing Public Comments?

Get a copy of *The Art of Commenting* by Elizabeth Mullin from the Environmental Law Institute (www.eli.org).

Remember: The Clean Water Act requires public involvement in many important decisions (CWA, Section 101(e)). No question is too obvious; no statement is too simple. It is critical that more people become involved in the review of CWA permitting and rulemaking.



Chapter 3

Identifying Problems and Restoring Watersheds

303(d) list - Identifying Threatened and Impaired Waters List

"Each state shall identify those waters within its boundaries for which the effluent limitations [for industrial and municipal wastewater] are not stringent enough to implement any water quality standard applicable to such waters."

(CWA, 303(d)(1)(A), also see 40CFR130.7(b))

Finding the Impaired and Threatened Waters in Your State

Click on your state to get a summary of the most recent 303(d) list for your state. (http://www.epa.gov/owow/tmdl/)

Statute? Regulation? Guidance?

When in doubt about how to interpret apparently contradictory parts of the listing and TMDL process, keep in mind that statute and regulations are the binding legal requirements. The statute overrules the regulations developed to implement the statute. Guidance documents are the agency's interpretation; they are not legally binding. These interpretations can be adapted on a case-by-case basis and changed in future guidance documents.

A warning sign on a river near Tinicum, Pennsylvania.

Identifying Problems and Restoring Watersheds

The Clean Water Act calls for states to take two distinct steps to address problems in the nation's waters. Those steps are to 1) identify the problems for each water body and 2) develop a plan to restore the integrity of each water body that has problems.

STEP 1
Threatened and Impaired Waters List

The Clean Water Act requires each state to list its polluted water bodies and to set priorities for cleaning them up. Water bodies qualify for the "impaired waters list" when they are too polluted or otherwise degraded to support their designated and existing uses. The impaired waters list is also called the 303(d) list, named after the section in the Act that requires it. The states submit their lists to the U.S. Environmental Protection Agency every two years.

What is an "threatened or impaired water?"

Any water body that does not meet or is not expected to meet the state's water quality standards after full implementation of basic permits should be considered threatened or impaired and placed on the 303(d) list. This includes waters that fail to support water body uses (sidebar at right), fail to meet any one of their applicable criteria — whether narrative or numeric, chemical, physical or biological — and those that fail to meet antidegradation requirements (40CFR130.7(b)(3)). For example, a water body that appears to meet all its numeric chemical criteria at all times (such as the criteria for dissolved oxygen, pH and various common pollutants) but doesn't meet its narrative biological criteria (such as maintaining a healthy habitat or biological communities sufficient to support native aquatic life and wildlife) should be listed as impaired.

If it can be proven that a particular proposed activity will violate water quality standards, any waters affected by that activity should be listed as threatened (40CFR130.7(b)(5)(ii)).

Neither the cause of a water quality problem nor its solutions need to be identified for a water to be listed. For example, waters in which one or more species are in rapid decline should be listed, even if the specific reason(s) for their decline is not yet known. In fact, one of the greatest values of 303(d) listing is to trigger the analysis needed to pinpoint sources of problems. Once identified, problems can be addressed through the development of comprehensive watershed restoration plans that define specific pollution limits, known as Total Maximum Daily Loads or "TMDLs" (p. 99).

How does the state compile the threatened and impaired waters list?

The Clean Water Act requires that each state report every two years on the health of all its waters, not just those that are impaired. Information from this report, known as the 305(b) report or "biennial water quality report," has historically been used to develop the "threatened and impaired waters" list (sidebar p. 94).

Most states compile the data and findings from the 305(b) report and add information from

Determining Impairment

Water quality criteria are the benchmarks against which data describing the actual condition of the water are compared. This methodology for the comparison differs quite a bit from state to state, but an example from Minnesota illustrates the basic idea. For conventional pollutants such as dissolved oxygen, pH and turbidity, a "percent exceedance" is calculated. It is calculated by dividing the number of times that samples from a particular water body don't meet the water quality criteria by the total number of samples. A minimum of 10 samples in 10 years is required.

*** If < 10 % of the samples don't meet the criteria, the water is deemed to be "Fully Supporting" its designated uses.**

*** If 10 – 25 % of the samples don't meet the criteria, the water is deemed to be "Partially Supporting" its designated uses.**

*** If >25% of the samples don't meet the criteria, the water is deemed to be "Not Supporting" its designated uses.**

National Water Quality Inventory: Report to Congress

Section 305(b) of the CWA calls for a biennial report to Congress on the health of all waters. The 305(b) report serves as each states' primary regular assessment of water quality. It serves as the basis for identifying problems (303(d) list), and is often used to set priorities and develop management plans (TMDLs). It must include:

- a description of the quality of each water body and of the extent to which its quality provides for the protection and propagation of fish, shellfish, and wildlife and allows recreational activities in and on the water;
- an estimate of the extent to which CWA programs have improved water quality and recommendations for future actions;
- an estimate of the environmental, economic and social costs and benefits associated with achieving the objectives of the Act for each water, and the estimated date of that achievement;
- an assessment of the water quality status and trends of all public lakes;
- a description of the nature and extent of "nonpoint source pollution" and recommendations of programs necessary to control each category of nonpoint source pollution, including an estimate of implementation costs.

States may also include in the 305(b) report a description of the nature and extent of groundwater pollution and state plans or programs to maintain or improve groundwater quality.

(40CFR130.8)

EPA Guidance for 2004 and 2006 Integrated Reports

You can find the "Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act" and the 2006 Guidance (draft at time of printing), on EPA's website at www.epa.gov/owow/tmdl/.

other sources, such as the state's report of waters affected by nonpoint sources (Chapter 6), to produce the 303(d) list. However, states have often failed to list waters for which there was ample evidence of impairment or future threats. Moreover, impaired and threatened waters that can meet water quality standards by assigning or enforcing basic (technology-based) pollutant limits are not to be listed.

The EPA recommends that states combine the threatened and impaired waters list with the 305(b) report to create an **"Integrated Report,"** due April 1 of even numbered years (sidebar at left). In its July 2003 guidance for the 2004 Integrated Report, the EPA described five categories into which all water bodies should be placed:

Category 1: All designated uses are met;
Category 2: Some of the designated uses are met but there is insufficient data to determine if remaining designated uses are met;
Category 3: Insufficient data to determine whether any designated uses are met;
Category 4: Water is impaired or threatened, but a watershed restoration plan (TMDL) is not needed;
Category 5: Water is impaired or threatened, and a watershed restoration plan (TMDL) is needed.

At the time of printing of this book, EPA's draft guidance for the 2006 Integrated Report recognized that water bodies may be placed into more than one of the five categories. States may categorize water bodies for which they don't have data (Guidance for 2004 Integrated Report).

Most state water quality agencies are able to monitor only a small percentage of their waters consistently enough to detect water quality problems. Yet, some state agencies have chosen to disregard almost all data other than their own. Regulations say states must evaluate "all readily available data and information" in developing their 303(d) lists (40CFR130.7(b)(5), sidebar p. 96).

Over the years, the EPA has approved many state lists that were considered inadequate by the public. In the 1990s, numerous public interest groups across the country filed and won lawsuits against the EPA for approving state lists that were demonstrably incomplete. Consequently, the EPA and the public now take a harder look at the adequacy of these lists when they are updated every two years.

How do I find out which waters are on the list?

Your state water quality agency, your regional EPA office and EPA headquarters all should have copies of your state's most recent 303(d) list. Because final approval of the list sometimes takes years, there may be several draft versions. Be sure to get the current approved list. To find your state's list online, go to EPA's 303(d) website, http://www.epa.gov/OWOW/tmdl/.

If my river is not on the list, can I assume it is healthy?

Unfortunately, no. It is possible that your river simply wasn't monitored enough to detect problems or to meet data requirements. It is also possible that your state's standards are too weak to trigger a listing.

You need to play an active role in ensuring that "threatened and impaired waters" lists are complete. Make sure that:

- standards are strong (Chapter 1);
- the chemical, physical and biological health of your waters is regularly monitored under the most critical conditions; and
- all reliable water quality data are considered by the state whenever the impaired waters list is updated.

Since a listing can lead to restrictions on new discharges, changes to existing permits, targeting of restoration funds, and improved management practices to reduce non-point source pollution, the effort to make sure that threatened and impaired waters (303(d)) lists are complete is worthwhile.

What happens to the waters on the 303(d) list?

Once a water body is placed on the "threatened and impaired waters" list, it becomes one of many in line for evaluation and development of a plan for solving the problems.

States are required by the regulations to base priorities for addressing problems on the severity of the pollution and the sensitivity of the uses to be made of the waters (40CFR130.7(b)(4)). A 1991 EPA guidance document includes the following criteria for setting priorities:

- level of risk to human health and aquatic life;
- degree of public interest and support;
- importance of recreational, economic and aesthetic uses;
- aquatic habitat's vulnerability or fragility;
- immediate programmatic needs (e.g., allocations needed to write permits or to implement best management practices); and
- national policies and priorities.

(57Fed.Reg.33040, 33045 (July 24, 1992) and EPA's 1991 Guidance)

Additional factors subsequently identified by EPA for priority setting include: court orders and consent decrees, rotating basin schedules, data availability, "logistical efficiencies" and likelihood of delisting in the near future (Guidance for 2004 Integrated Report).

Your state may have its own regulations and guidance about priority setting for threatened and impaired waters. While state regulations can't contradict federal regulations, they can contain more detail. If you feel that the criteria your state is using to set priorities are incomplete or simply wrong, propose some additional ones for your state agency to consider. You may also wish to inform the EPA, elected officials, public interest groups and the media about your suggestions.

What to do when impaired or threatened waters are not listed

Gather as much information as possible, and provide the water quality agency with (a) convincing documentation of water quality criteria violations or (b) proof that designated or existing uses are not being or will not be protected by basic permit limits. If you plan to collect information to help your state place a water body on the 303(d) list, be aware that the EPA guidance calls for "reliable" information (Guidance for 2004 Integrated Report). In other words, agencies sometimes cannot use all information submitted by citizens.

If you take the time to learn your agency's requirements for data collection and submission, you can increase the chances that your information will be used.

Before the next list revision is due to EPA, request a public hearing to present your information. Earlier is better! Many states collect and evaluate data well before the April 1 deadline and won't consider data after their internal review is complete. The summer before the April 1 (even years) due date is usually a good time to engage.

Publicize all the "reliable" information you have. Photos can be evidence of violation of water quality standards. If the state does not accept your information, you can ask the EPA to disapprove the list.

"No new discharges..."

When a water body is on the 303(d) list, new discharges that might cause or contribute to the problems in the water are prohibited.

"No new permit may be issued to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards."
(40 CFR 122.4(i))

In practice, however, many states have continued to allow new discharges to threatened and impaired waters, in apparent contradiction of the regulations.

Technically, new discharges should only be allowed if a restoration plan was developed and the new pollutant contribution was included in the the restoration plan.

Volunteer Monitoring Data for Listing

Many states use citizen monitoring data to identify problems for further attention. Federal regulations require state agencies to "actively solicit" citizen data in their 303(d) listing process. "[E]xisting and readily available water quality data" includes "waters for which water quality problems have been reported by local, state, or federal agencies; members of the public; or academic institutions" (40CFR130.7(b)5(iii).

Some states, such as Maine and Massachusetts, rely on volunteers to help collect water quality data by funding training programs and/or central management of the data collected. Most states have a quality assurance protocol that defines how samples must be taken, tested and documented. If you follow a state monitoring protocol, the state agency should accept your data.

In addition, once impaired waters are placed on the 303(d) list, proposals for new and increased discharges should receive greater scrutiny. Clean Water Act regulations prohibit new discharges that "will cause or contribute to the violation of water quality standards" (40CFR122.4(i), sidebar at left).

How can I influence which water bodies are placed on the 303(d) list?

Some states do call for data from the public while drafting the 303(d) list. In most states, however, the public will see only a draft 303(d) list when it comes out for public comment. Once the draft 303(d) list is released, you have at least 30 days to comment, and you may request a hearing (40CFR130.7).

By providing valuable information to the listing process, you can help improve the quality of the 303(d) list. Any information that is collected about the health of a water body may be useful to the state in determining whether designated and existing uses are supported or water quality criteria are met.

If a water body has problems, it will likely receive more attention and resources in the years ahead if it is placed on the 303(d) list than if it is not. Consequently, it is critical that citizens regularly provide information to the state to help identify newly impaired or threatened waters. The 303(d) list may be updated more frequently than is officially required by the EPA.

When should a water body be removed from the "threatened and impaired waters" list?

Many states continue to look for ways to shorten their 303(d) list and thus reduce their responsibilities for developing plans to solve the problems (Total Maximum Daily Loads). EPA policy allows states to remove water bodies from the list after they have developed a plan or after other changes have been made, such as revisions to one or more permits (to correct any water quality problems), weakening of standards or removal of designated uses. Unfortunately, this policy can result in attention being drawn away from many water bodies before water quality is improved. Some experts insist that waters should stay on the list until they meet water quality standards, and others believe that waters on the list should remain on the list indefinitely because they will always be threatened or at risk of impairment.

Parties whose activities contribute to a water body's impairment may attempt to persuade the state to remove the water from the list. Sometimes these parties claim that certain uses are not attainable or that standards have not been violated. As explained in Chapter 1, designated uses may not be deemed unattainable and removed unless a formal analysis clearly shows that that they cannot be attained (Chapter 1, p. 23).

Action checklist

Threatened and Impaired Waters List

1. Request your state's list of "threatened and impaired waters" (303(d) list). You can also get it online at http://www.epa.gov/OWOW/tmdl/. Examine the water bodies on the list that you know best. Does the list include all the threats or impairments that you know?
2. Determine when the agency will start collecting data for the next list. Get on the mailing list for public notices of 303(d) list development.
3. Find out whether the state accepts volunteer water quality monitoring data for 303(d) listing and, if so, what the quality assurance protocol involves.
4. Take pictures to assist with listings (e.g., muddy waters on rainy days).
5. Find out if your state has listed any "threatened waters" and scheduled them for TMDL development. If not, pursue the listing of a popular water segment that has a high profile threat.
6. Identify key problems across the state (e.g., high temperatures, excessive nitrogen and phosphorus) that most frequently place water bodies on the 303(d) list. Ask the state for a broader strategy to address these common problems.
7. Request the priority schedule for addressing 303(d) listed water bodies and the basis for the priority rankings. Ask how endangered species and drinking water needs factor into these priorities. Where does your watershed fall in the state's priorities?
8. Be especially alert to changes in the list. States are developing procedures for removing water bodies from the 303(d) list. Ask when waters are removed from the 303(d) list. Ask whether waters are automatically removed from the 303(d) list once TMDLs are developed and approved for them.

Volunteer monitoring helps identify problems and improve clean-up

The Beachkeeper program is a volunteer water quality monitoring program that involves the local community in identifying and monitoring sources of urban runoff in Santa Monica Bay. By becoming Beachkeeper volunteers, members of the local community demonstrate their interest in and concern for the environment by taking an active role in protecting coastal resources.

© Santa Monica Baykeeper

Malibu, California

From its inception in 1996, the Beachkeeper program has provided water quality data and source identification information for pollution flowing into the Santa Monica Bay. This information is disseminated to the community, municipalities and government agencies such as the Los Angeles Regional Water Quality Control Board (Regional Water Board), which uses the data to develop plans and programs (such as TMDLs) to reduce — and ultimately stop — pollution from reaching local waters.

Public involvement is required in the 303(d)/TMDL process. State and local agencies interpret public involvement in various ways, but from an environmental non-profit organization's perspective, this requirement is a blessing.

Recently, information collected through the Beachkeeper program has contributed to both 305(b) reporting and the 303(d) listing process in the region. this information has also played a significant role to the development of a bacteria TMDL for Santa Monica Bay beaches, which are visited by 50 million tourists each year. The Beachkeeper program's drain identification and location catalogue was included as an appendix to the TMDL and helped identify all potential discharges to the Bay. Before this documentation, few believed there were over 350 drains that potentially lead to the Bay.

Furthermore, the water quality data collected from these drains has been used in the preliminary stages of the TMDL implementation process. Specifically for the bacteria TMDL, some drains of serious concern were overlooked by the Regional Water Board until the Beachkeeper Program provided four years worth of drain flow and bacteria data that validated the need for their inclusion. As a result, additional weekly monitoring and observation sites were added into the TMDL monitoring plan.

Without question, some of the major accomplishments in the Beachkeeper program stem from a heightened interest in water quality from community members. This interest, combined with the hard work and dedication shown by these volunteer stewards has brought volunteer monitoring to an entirely new level in Los Angeles. Working together, state and local water quality agencies, local environmental groups like the Santa Monica Baykeeper and the community are proving that we can solve our water quality problems. ◆

For more information, contact Angie Bera with Santa Monica Baykeeper (octopus@smbaykeeper.org).

Yukon Flats National Wildlife Refuge, Alaska

STEP 2

Watershed Restoration Plans (Total Maximum Daily Loads/TMDLs)

What is a TMDL?

Although the acronym TMDL refers to the "total maximum daily load" of a pollutant, in Clean Water Act parlance, the expression has come to represent both a pollutant cap and a restoration or management plan. The cap is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards. The cap is focused on one pollutant (such as bacteria or sediment) usually in one particular part of a water body, though sometimes it addresses an entire river or lake. The plan describes how the cumulative contribution from every source of the pollutant (plus an allowance for a margin of safety) must be reduced to a level that is less than the pollutant cap. This reduction is based on restoring or maintaining the water body so it is safe for people and wildlife. The plan may address more than one pollutant, and frequently it covers more than one impaired or threatened reach or segment of the water body. More TMDLs are being developed on a watershed basis.

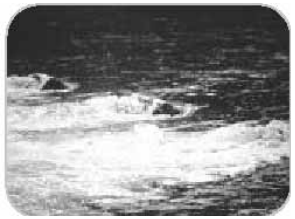
EPA approved TMDLs

To find the TMDLs in your state, click on the map at http://www.epa.gov/owow/tmdl/.

Reviving TMDLs

For years after the passage of the Clean Water Act, the section of the law intended to address threats and problems at the watershed level was poorly implemented or ignored. Lawsuits during the 1990's that addressed inadequate or missing 303(d) lists prompted better lists and schedules for TMDL development. As a result, the TMDL program has garnered significant resources in nearly every state.

TMDL EQUATION*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Limits on Point Sources of Pollution

(Waste load allocation)

+


© Tim Palmer

Limits on Nonpoint Sources of Pollution

(Load allocation)

+


River Network Collection

Margin of Safety

(Accounting for uncertainty in the proposed reductions)

=


© Tim Palmer

Healthy Water

(within Total Maximum Daily Load pollution cap)

* Background contributions and seasonal variation of pollutants must be included in the TMDL calculation; attention to future growth is recommended and will result in easier future TMDL compliance.

TMDLs are required to address impairment and threats identified on the 303(d) list. Therefore, the plans are needed both to restore and protect our water bodies. For the purposes of explanation, however, most of the language in this chapter focuses on restoration.

What are the components of a TMDL?

A TMDL is made up of point sources, known as the Waste Load Allocation (WLA), nonpoint sources, known as the Load Allocation (LA) and a margin of safety (MOS) to account for the uncertainty in predicting how much pollution reduction will result in meeting water quality standards. In allocating pollutant loads, it is required that background conditions (before human impacts) and seasonal variation of the pollutant levels are taken into account (40CFR130.7(c)(1)). It is recommended by the EPA that TMDLs specifically account for future growth as well.

When is a TMDL required?

According to the Clean Water Act, each state must develop TMDLs for all the waters on the 303(d) list. However, the EPA has developed a guidance document that recommends placing all waters in one or more of five categories when developing the 303(d) list, with only one category requiring TMDLs (Guidance for 2006 Integrated Report). Insist that your state follow the CWA regulations for listing. Timelines for the completion of TMDLs vary across the country. Most states are under court orders and consent decrees for TMDL completion; required timelines range from five to fifteen years. In reality, if states list waters because they are threatened rather than impaired, they are likely to be assigned the lowest priority. TMDLs may not be completed for many years, if ever.

What are the steps in the TMDL process?

When the TMDL development begins, the pollutant cap must be set based on what the water body can handle and still meet water quality standards, not what is already there. The sources of the pollutant(s) are identified, and they are each allocated a portion of the pollutant cap that

usually requires a reduction in their pollution discharge in order to help solve the problem. Some argue that the Act doesn't require anything beyond the identification of the cap and assignment of the responsibilities to meet the cap. Without full implementation of the TMDL, however, it cannot be an effective tool to address problems in our threatened and impaired waters.

What is the goal for the TMDL?

The whole point of this exercise is to end up with a plan to meet water quality standards (uses, water quality criteria and the antidegradation policy) and restore or protect each water body.

What amount of pollution is allowable?

Every water body has a limit of how much pollution it can take in (assimilate) and still support all its legally protected existing and designated uses. At some point, for each pollutant, the amount

Setting Goals

"(1) Each State shall establish TMDLs for the water quality limited segments…in accordance with the priority ranking. For pollutants other than heat, TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical [water quality standards] with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. Determinations of TMDLs shall take into account critical conditions for stream flow, loading, and water quality parameters.

(2) Each State shall estimate for the water quality limited segments … the total maximum daily thermal load which cannot be exceeded in order to assure protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife…"

(40CFR130.7(c)(1)-(2))

Steps to Develop a Successful TMDL

LIST AND PRIORITIZE

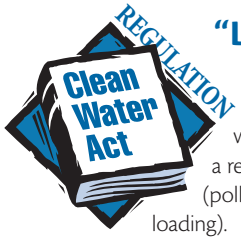
1. Identify all threatened and impaired waters on 303(d) list.
2. Prioritize water bodies for clean-up plan.

DEVELOP PLAN

3. Determine the allowable amount of the pollutant, the "pollutant cap," based on what the water body can handle without violating water quality standards.
4. Identify all contributing sources to the problem being addressed.
5. Divide up the allowable pollutant "load" among all point and non-point sources.
6. Take into account background sources, seasonal variations and a margin of safety to account for uncertainty (40CFR130.7(c)(1)). It is also important to consider contributions from likely future development, although this is not explicitly required.
7. Develop an implementation plan that includes adjustment of permits and monitoring. An implementation plan is not required, but it is needed to focus agency, local government and stakeholder attention on achieving TMDL goals.
8. Send draft out for public comment and/or public hearing (40CFR130.7(c)(1)(ii)).

IMPLEMENT CHANGES

9. Carry out activities in implementation plan.
10. Monitor progress toward the goal. A monitoring plan is not required, but thoughtful monitoring will provide important feedback throughout implementation.
11. Revise as necessary.



"Loads and Loading Capacity"

"**Load or loading**: an amount of matter or thermal energy that is introduced into a receiving water; to introduce matter or thermal energy into a receiving water. Loading may be either man caused (pollutant loading) or natural (natural background loading).

Loading capacity: The greatest amount of loading that a water can receive without violating water quality standards." (40CFR130.2(e)-(f))

Ensure TMDL Addresses Appropriate Pollutant Measures

The TMDL should assure that all applicable criteria are met at all times. Find the water quality criterion for each problem pollutant in your state's water quality standards. Some pollutants, like metals and other toxic contaminants, have both acute and chronic criteria. Pollutants may also have seasonal criteria.

coming into a water body will become too much, and aquatic life will be affected, recreation will be compromised, or the water supply will be jeopardized.

But what is that point? Agencies depend on existing research, data collected, models and/or "best professional judgement" to determine the allowable contribution or load for each pollutant in each segment of a water body. These allowable loads must be protective of all uses of the water body during the most critical conditions, such as low flow. To determine allowable loads, "site-specific information should be used whenever possible" (40CFR130.7(c)(1)(i)). Documentation of the calculation of allowable pollutant amounts should be available to the public. Local technical experts (e.g., university researchers or consultants) may be willing to help review these calculations.

Does the TMDL have to address "daily" pollutant loads?

One of the problems encountered when evaluating TMDLs is that the cap and the allocations in the Total Maximum Daily Load are often not specified as maximum daily amounts. They are frequently expressed as monthly or annual loads. The TMDLs are required to account for daily loads to assure that standards are met at ALL times, despite daily or seasonal changes in conditions. It is possible to meet a monthly or an annual load cap even if critically poor water quality conditions occurred during part of that month or year.

Realistically, it is difficult to express some TMDLs, such as those dealing with habitat or flow problems, as a daily pollutant load. If the target of a TMDL is presented as something other than a daily load, insist that the agency explain how the water quality criteria will be met and the uses will be protected every day throughout the year.

What does the Margin of Safety represent?

TMDLs must include a Margin of Safety (MOS) to account for the uncertainty about the relationship between pollutant limits and water quality targets (CWA, Section 303(d)(1)(c)), which might be due to data gaps, missing sources, modeling assumptions, etc. The MOS is intended to provide a cushion in the TMDL because it is difficult, if not impossible, to determine exactly what is needed to restore or protect the water body on the first try.

A MOS can be introduced either as an explicit, set-aside part of the total allowable load, or through implicit conservative assumptions used in determining the TMDL. The implicit approach is more commonly used by agencies, but it is less informative to the public. An explicit MOS set-aside more clearly accounts for uncertainties in the assumptions used to establish a pollutant cap and allocate pollutant loads among sources.

How do I know whether all pollutant sources will be held accountable?

The TMDL can allocate the pollutant "pie" in several ways. For point sources, the situation is straightforward. In most cases, each NPDES permittee will be allocated a certain amount of the pollutant load. In some TMDLs, smaller point sources are grouped together for a collective pollutant allocation. This approach can make it difficult to track an individual permittee's compliance with the TMDL, and it can result in "hot spots" where violations are greater if the sources are in close proximity. Regulators need to include every point source of the targetted pollutant as a part of a Waste Load Allocation (WLA) and assign specific pollutant loads to each source that can be translated into numeric, enforceable permit limits.

For nonpoint sources, pollutant loads are often allocated to broad categories of activities in a water body. For example, pollutant loads may be divided into agricultural and silvicultural sources. Because nonpoint sources of pollution are typically unregulated, allocation of a portion of the "pie" to specific nonpoint pollutant sources in the Load Allocation (LA) may provide the best opportunity to secure local support and funding for necessary controls.

Regulators may overlook a pollutant source. Identification of pollutant sources can be a fruitful contribution of interested watershed residents to the TMDL process.

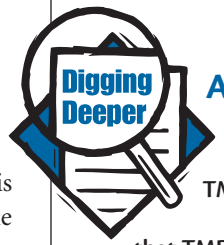
Who develops TMDLs?

Most states have taken the lead in developing TMDLs. The development of TMDLs is frequently contracted out to consulting firms. In some states, nonprofit statewide environmental groups or watershed organizations have taken on significant responsibility in the development of a TMDL, accepting technical assistance and sometimes funding from the state or federal agencies. For example, the Huron River Watershed Council in Michigan helped to develop a TMDL to address phosphorus problems in the Huron River.

The EPA has a legal responsibility to ensure the development of enforceable TMDLs, and the agency fulfills that responsibility by reviewing and issuing approval or disapproval of all TMDLs. The EPA has developed many TMDLs itself in response to court orders, requests from the state or inadequate state attempts.

What if my state doesn't include implementation and monitoring plans in the draft TMDL?

TMDL implementation plans are varied and difficult to enforce. Some states have stepped up to the plate by adopting regulations requiring implementation plans, and others have developed implementation guidance. At the very least, because TMDL-required changes to NPDES permits must be



Addressing Stream-Flow Problems

To the extent that flow impairments damage habitat and cause harm to aquatic life, listing and TMDL development may be warranted.

EPA has interpreted the regulations to mean that TMDLs are required only for pollutants (40CFR130.7(c)(1)(i)). EPA guidance states that if only low flow threatens or impairs a water body, a TMDL is not required. It belongs in Category 4 of the 303(d) list (p. 94).

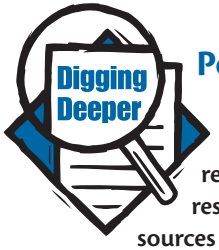
"EPA does not believe that flow, or lack of flow, is a pollutant as defined by CWA Section 502(6). Low flow can be a man-induced condition of a water body (i.e., a reduced volume of water) which fits the definition of pollution. Lack of flow sometimes leads to the increase of the concentration of a pollutant (e.g., sediment) in a water. In the situation where a pollutant is present, a TMDL, which may consider variations in flow, is required for that pollutant." (Guidance for 2004 Integrated Report)

Waters with flow impairments are therefore likely to end up in "Category 4: Water is impaired or threatened, but a TMDL is not needed" (p. 94).

Enforceable Nonpoint Source Pollution Control

"Enforceable State Mechanisms for the Control of Nonpoint Source Water Pollution," Environmental Law Institute, 1997. (http://www.epa.gov/owow/nps/elistudy/)

"Almanac of Enforceable State Laws to Control Nonpoint Source Water Pollution," Environmental Law Institute, 1998. (www.elistore.org/reports.asp)



Pollution Trading and TMDLs

Some TMDLs are being developed with built-in "pollution trading" strategies. Pollution trading refers to ways that pollutant sources can shift responsibility for addressing pollution. Point sources can trade pollution "credits" with other point sources or with nonpoint sources of pollution. For example, one point source discharger may be able to reduce its load beyond what is required by a TMDL. Under EPA's trading guidance, that source may be able to "trade" that extra reduction or "credit" to another source for which that same reduction would be more difficult or expensive to achieve. The transaction usually involves purchase of the credits.

Another common example (refered to as a pollution "offset") is when a point source discharger chooses to pay for better nonpoint source best management practices in the watershed in order to achieve specific pollution reductions rather than to pay for upgrading its facility. Specifically, a municipal wastewater treatment authority may discharge water that is too warm to support the uses in the receiving water. To address the problem, the authority may invest in riparian vegetation on someone else's property to create shading that will cool the water.

Pollution trading poses challenges that include difficulties in monitoring progress and holding sources accountable. A trading program may lead to unwanted consequences such as (a) local "hot spots" of poor water quality, (b) a weakening of enforcement provisions; or (c) inequities from allowing trading across watersheds or within large watersheds. Ask for specific details about how the water quality standards will be met.

Santa Fe River, New Mexico

made by the permit authority, the TMDL should make reference to the timing and nature of those adjustments. Even in states where implementation plans are required, such as Virginia, citizen review and pressure are still needed to ensure the plans have some value.

Monitoring plans are necessary to identify the measurements of success in the watershed and to assign responsibilities for tracking progress. If your state does not include a monitoring plan with the draft TMDL, ask how assigned pollutant allocations will be evaluated and overall improvement will be measured. Point out that until the condition of the water body improves, no additional sources can be permitted (sidebar p. 96).

What happens after the TMDL is developed?

After a TMDL is developed, implementation must begin. First steps include reducing permitted discharges and securing better control of other sources of pollution through whatever means are available. These "means" usually include a combination of best management practices (education and voluntary measures), financial assistance or cost sharing programs, and regulations (sidebar p. 103). Funding programs are increasingly focused on TMDL implementation. For example, many states only fund Section 319 nonpoint source control projects in impaired watersheds (Chapter 6).

Some state agencies require monitoring to evaluate the success of TMDL implementation. Instream monitoring can be required when NPDES permits are revised, otherwise it is likely to fall on the agency's shoulders. If monitoring continues to show water quality problems after implementation, the agency must go back and fine-tune its TMDL. Although the national regulations do not explicitly require implementation, monitoring or revisions, without these efforts, the TMDL remains simply a paper exercise.

Current EPA policy allows removal of waters from the 303(d) list once the TMDL is developed. As discussed on page 96, there is much debate about whether this is appropriate or legal, and whether water bodies should remain on the list until water quality standards have been met.

How can I get involved in the TMDL process?

The Clean Water Act requires public involvement in developing TMDLs (sidebar at right). The level of citizen involvement in the TMDL process varies by state. Typically, the state will circulate a draft threatened and impaired waters (303(d)) list and draft TMDLs and allow 30 to 60 days for public comment. In some cases, hearings will be held as well.

Be sure that you are on the public notice mailing lists for the water bodies you care about most. You do not need to wait for the public notice to make your interest in the TMDL process clear to the agency. As a practical matter, the earlier and more substantively you are involved, and the more public interest you generate, the better your chances of making a difference will be. Citizen information can improve the quality of TMDLs that are developed and can ultimately speed cleanup of impaired waters or secure protection of threatened waters. In many states, you can take the initiative to contribute to TMDL development.

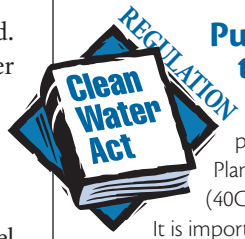
What if the final TMDL does not adequately address the impairment or threat?

The EPA must review and approve or disapprove all TMDLs within 30 days. If 30 days have not passed and EPA has yet to act, you can contact your regional EPA office and explain your concerns. Follow any such call with a letter summarizing your points.

If 30 days have passed, and EPA has not acted, you can initiate the process for a citizen suit to force EPA to act (CWA, Section 505, Chapter 8). If EPA has approved a bad TMDL, you may also be able to initiate a citizen suit process.

What if TMDL-required changes to permits are not made?

Once a TMDL is approved by EPA, the cap for the pollutant addressed in the TMDL effectively acts as a site specific water quality criterion. In order for the TMDL to work, the pollution allocations for point sources and the changes to nonpoint source pollution control practices must be implemented in a timely fashion. Changes to the permit limits consistent with the TMDL must occur when a permit is up for renewal after the TMDL has been approved, if not sooner. If the agency has not adjusted permits with respect to the approved or anticipated TMDLs, it is important to raise concerns in comments, hearings and permit appeal procedures.



Public Involvement Required in the 303(d)/TMDL Process

"Calculations to establish TMDLs shall be subject to public review as defined in the State Continuing Planning Process."
(40CFR130.7(c)(1)(ii))

It is important to note that some states do not interpret this language as meaning the public should be involved in all phases of the 303(d)/TMDL process. Citizens should insist on early and multiple opportunities for public involvement.

Action checklist

Total Maximum Daily Loads

1. Get on the mailing list for all TMDLs in your basin, and request opportunities for public involvement if none are planned.

2. During TMDL development or once you obtain a draft TMDL, explore the following questions:

   a. Is the TMDL designed to meet water quality standards?

   b. Is the pollution cap set as a daily load? Are the allocations for point and nonpoint sources set as daily loads?

   c. Are all sources included?

   d. Are pollutant load allocations among and between point and nonpoint sources appropriate?

   e. Are there reasonable assurances that the non-point sources will be adequately addressed?

   f. Is there an implementation plan? Does it include adequate monitoring and a timeline for revisions?

   g. What permits will be changed as a result of the new TMDL, and by when?

   h. What best management practices are required to address the different kinds of nonpoint source pollution in your basin? Who is responsible for paying for the BMPs, putting them in place and monitoring them? How will BMPs be monitored? What is the timeline for compliance and results? Is there a mechanism for enforcement?

   i. Is there a trigger for revisions if pollutant allocations are not adequate to meet water quality standards?

3. Identify all the other watershed improvement efforts underway (such as Source Water Assessments under the Safe Drinking Water Act, Habitat Conservation Plans under the Endangered Species Act, or any solid or hazardous waste cleanup plans under state or federal programs), and make a case for coordinating the activities and leveraging the resources being used (Chapter 10).

Public Participation Leads to Better TMDL

Local citizens sometimes know more about what is happening in their watersheds than state agencies, and this knowledge can be a valuable aspect of TMDL development. Such was the case for Lake Yazoo in Mississippi.

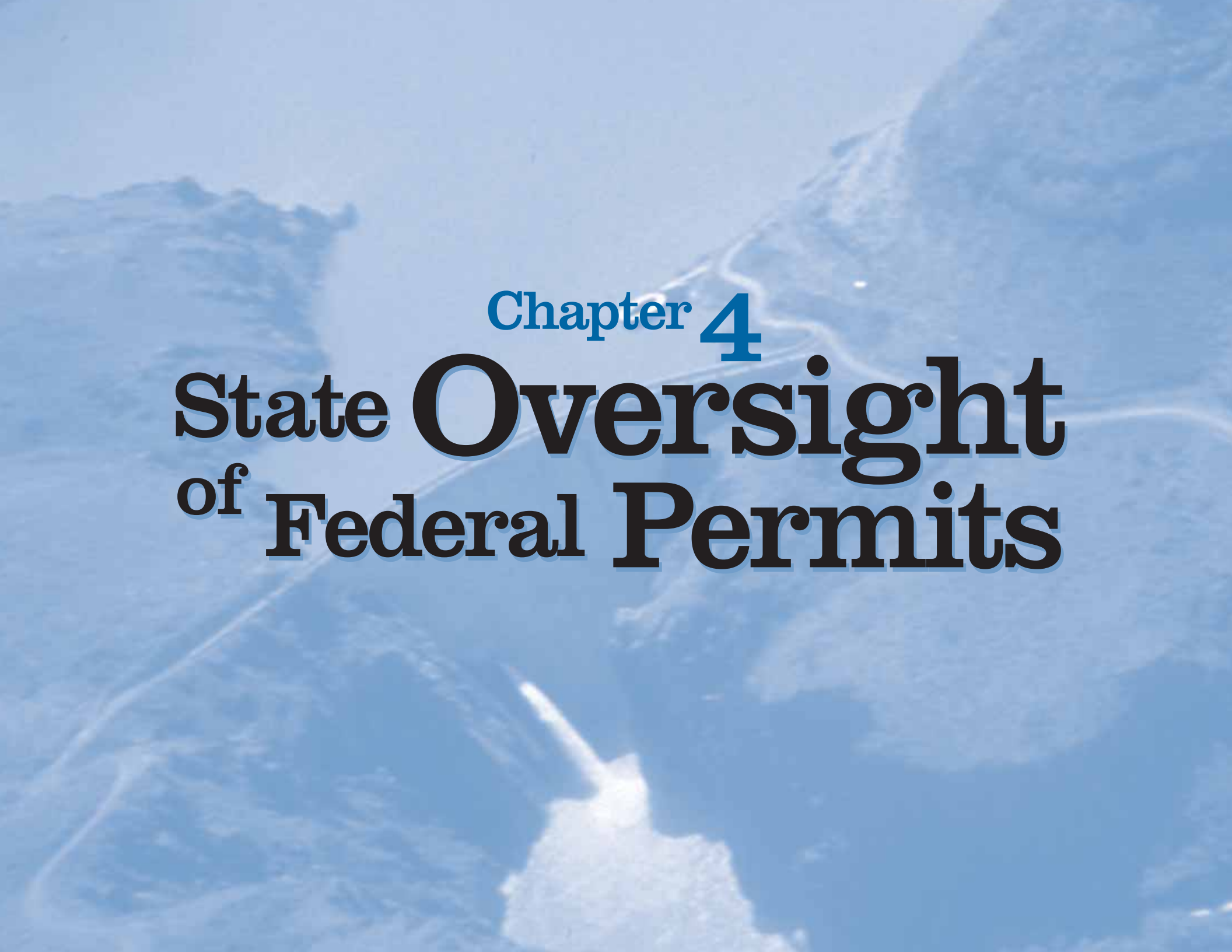
From the looks of the June 2004 TMDL for Lake Yazoo, it appeared that the Mississippi Department of Environmental Quality (MDEQ) had written the lake off as a lost cause. A 1979 study found that the small coastal lake was contaminated with phenols and hydrocarbons. At the time of the development of the TMDL, the MDEQ was underfunded, and the lake was not a high concern for the agency. As a result, the 2004 TMDL for the lake was based solely upon the 1979 study. Citizens who were concerned that the TMDL would not be an effective tool in cleaning up Lake Yazoo contacted the Gulf Restoration Network for help.

Greg Jackson

Lake Yazoo, Mississippi

Of particular concern was the fact that the draft TMDL stated that there were zero nonpoint sources of pollution in the watershed, even though further study was necessary to fully assess the pollution sources for the lake. One citizen was aware of a ship building yard in the watershed that had not been accounted for, and she brought this information to the attention of the Gulf Restoration Network. Together they raised this issue during the public comment period, prompting the state to conduct a more careful investigation of permits issued for the area. Consequently, several stormwater permits were identified and added to the TMDL as pollution sources.

As a direct result of citizen involvement, the language of Lake Yazoo's TMDL now reflects the fact that nonpoint sources of pollution are "unknown" rather than "zero," and that revisions to the TMDL are necessary as new data become available. More importantly, because the public expressed its concern over Lake Yazoo, MDEQ is taking action toward cleaning up the lake. The agency is currently pursuing funding to conduct a new pollutant transport study, which will help them determine the current state of the toxic contaminants in the area. ◆



Chapter 4
State Oversight of Federal Permits

State Water Quality Oversight of Federal Permits

"Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate…that any such discharge will comply with the applicable provisions…of this Act."

"No license or permit shall be granted until the certification required…has been obtained or has been waived…"

"No license or permit shall be granted if certification has been denied by the State, interstate agency, or the Administrator, as the case may be."

(CWA, Section 401(a)(1))

What is Required in a Certification?

In addition to the name and address of the applicant and a statement that the certifying agency has examined the application and other information provided sufficient to make their determination, the certification must include:

- "A statement that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards;
- A statement of any conditions which the certifying agency deems necessary or desirable with respect to the discharge of the activity; and
- Such other information as the certifying agency may determine to be appropriate."

(40CFR121.2(a)(3)-(5))

River Network

River Network Collection

State Oversight of Federal Permits

In order to ensure that federal activities will not violate state water quality standards, the Clean Water Act gives states, some tribes, some interstate agencies and EPA (sometimes) the authority to veto or place conditions on activities requiring a federal license or permit that may result in a discharge (CWA, Section 401(a)(1)). If your state takes full advantage of this authority, known as "water quality certification," citizens can get involved to protect and restore water quality and uses around and downstream from federally permitted activities.

What activities require this water quality certification?

The 401 certification process has been primarily applied to

- Private hydropower dam construction and operation that requires federal licensing;
- Dredge and fill activities that require federal 404 permits (Chapter 6); and
- NPDES permits in states where the EPA issues the permits.

It is important to note that 401 applies to all federal licenses and permits, not just those under the Clean Water Act. Attempts to apply Section 401 to other activities, such as grazing permits granted by the U.S. Forest Service and the Bureau of Land Management and permits granted by the U.S. Forest Service to construct and operate ski areas and drinking water reservoirs, have had mixed results (sidebar p. 113).

Who is authorized to grant 401 certification?

States, interstate agencies, the EPA Administrator (where EPA has developed federal standards or no state or interstate agency has authority) and tribes (where they have developed and EPA has approved their water quality standards) are all responsible for exercising or waiving the 401 certification of federal licenses and permits. For the purposes of this chapter, we will refer mainly to states' authority.

What can states and other authorities do under Section 401?

When faced with an application for water quality certification, a state can:

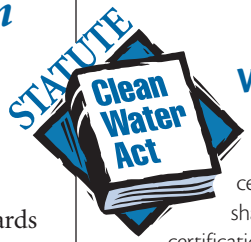
1. certify the project;
2. certify the project with conditions necessary to comply with water quality standards (designated uses, water quality criteria and antidegradation);
3. deny certification; or
4. waive its certification authority.

If a state fails to act on an application for certification within one year, the application is automatically "waived." This means that the permit can go ahead without the state water quality certification.

Most often, states either grant certification or place conditions on the certification that require the applicant to take specific measures to protect water quality. Depending on water quality standards in individual states, the water quality certification can establish a variety of different types of conditions. For example, a certification may establish a minimum flow schedule or flow storage (PUD No.1 of Jefferson County v. Washington Dept. of Ecology, 511 U.S. 700, 723 (1994)), or it can require fish passage or the creation of a recreational facility for enhanced access (America Rivers v. FERC, 129 F.3d 99 (2nd Cir. 1997)). A certification can be issued with an adaptive management plan to meet water quality targets in the future, and it may also reserve the state's authority to reopen the certification if the state determines any such condition is necessary to ensure compliance. A federal agency may not amend or delete a certification condition, and a license or permit applicant (or other participant) may challenge an objectionable certification only in state court.

Certifying Authority

"Certifying agency means the person or agency designated by the Governor of a State, by statute, or by other governmental act, to certify compliance with applicable water quality standards. If an interstate agency has sole authority to so certify for the area within its jurisdiction, such interstate agency shall be the certifying agency. Where a State agency and an interstate agency have concurrent authority to certify, the State agency shall be the certifying agency. Where water quality standards have been promulgated by the Administrator pursuant to Section 303(c)(4) of the Act, or where no State or interstate agency has authority to certify, the Administrator shall be the certifying agency." (40CFR121.1(e))



Waiver of 401 Certification

"If the State, interstate agency, or Administrator, as the case may be, fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request, the certification requirements of this subsection shall be waived with respect to such Federal application."
(CWA, Section 401(a)(1))

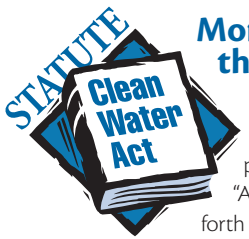
Prevent 401 Waivers

It is important for citizens to prevent "default" waivers from happening automatically after one year of state inaction on an application. Ask your state water quality agency to notify you when 401 applications come in. Mark your calendar and raise concerns if no certification is drafted after nine months.

401 Legal Decisions

• **401 conditions protect instream flow**
(PUD No. 1 of Jefferson County v. Washington Dept. of Ecology, 511 U.S. 700 (1994)).

• **401 denied to prevent impacts of a new dam**
(City of Klamath Falls v. Environmental Quality Commission, 119 Or.App. 375, 851 P.2d 602 (1993)).



Monitoring for Compliance With the Terms of 401 Certifications

The Clean Water Act calls for the monitoring of provisions listed in 401 certifications:

"Any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations and other limitations…and with any other appropriate requirement of State law…"

(CWA, Section 401(d))

Do states ever deny water quality certification?

A state may deny certification altogether if it believes that a project will cause or contribute to a violation of its water quality standards. For example, the Oregon Department of Environmental Quality denied the City of Klamath Falls' application for certification of a new hydroelectric project on the Klamath River because models showed the river would not meet state water quality standards for temperature if the project went forward (sidebar at left).

How does the 401 certification work for general permits (NPDES or dredge and fill (404))?

States are often required to review general permits that cover entire categories of activity. Once 401 certification is granted to a general permit, the certification applies to all entities whose activities are subsequently covered by the general permit. States can deny or condition 401 certification for a general permit (thus an entire category of activity) but not for each activity covered by the general permit.

When water quality conditions are placed on a permit, how are they monitored and enforced?

Any conditions imposed by a state as part of the 401 certification process become conditions of the federal permit. Instream flow requirements found in most certifications for relicensing hydropower dams require continuous monitoring and evaluation. Section 401 requires that certifications include "monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with" applicable limitations, including state water quality standards (CWA, Section 401(d), sidebar at left).

Either the state agency or the federal agency issuing the license or permit can enforce the conditions of 401 certification. The 401 conditions are also enforceable by citizen suits (CWA, Section 505(f)(5), Chapter 8). For example, if Tacoma City Light does not maintain the instream flows ordered by the State of Washington in PUD No.1 of Jefferson County v. Washington Department of Ecology (Local Story, p. 116), private citizens can sue the utility to force compliance with those conditions.

Owens River, California

What if there is evidence that a state water quality certification isn't going to assure protection of water quality standards?

A state certification is required to have several elements including "reasonable assurance" that water quality standards will be met (40CFR121.2(a)(3), sidebar p.110). Therefore, if a state certifies a federal permit despite evidence that the permit will violate water quality standards, citizens can sue in state court to add or improve the conditions or to have the certification revoked. Thus, citizens can stop the activity (because the permit is not valid without the certification) until the applicant provides reasonable assurance that the facility or activity will not violate water quality standards.

How can I tap into the 401 certification process?

Start by notifying your state water quality agency that you are interested in 401 certifications in some or all of the state's watersheds. You can find your state 401 contact online through the River Network database of state CWA information (http://www.rivernetwork.org/cleanwater/cwa_search.asp).

Many of the specific provisions for public involvement vary by state. The Clean Water Act

Public Involvement Requirements in the 401 Process

The state water quality agency must provide public notice for all 401 applications:

"Such State or interstate agency shall establish procedures for public notice in the case of all applications for certification by it and, to the extent it deems appropriate, procedures for public hearings in connection with specific applications."
(CWA, Section 401(a)(1))

Case Law on Citizen Enforcement of 401 Certification

• 401 required for grazing permits (Oregon Natural Desert Association v. Dombeck, 172 F.3d 1092 (9th Cir. - Or. 1998)). (This decision was overturned by Oregon Natural Desert Association v. Thomas, 940 F.Supp. 1534 (D.Or.1996).

• 401 required when FERC license to replace generators would alter the quantity of discharge (Alabama Rivers Alliance v. FERC, 325 F.3rd 290 (D.C.Cir. 2003)).

• 401 required only in state where discharge "originates;" not upstream from a dam (National Wildlife Federation v. FERC, 912 F.2d 1471 (D.C.Cir. 1990)).

requires that states establish procedures for public notice for all 401 certifications and public hearings for "specific applications" (CWA, Section 401(a)(1)). Thus, you must ask your state agency or look to individual state rules implementing Section 401 to determine the procedures for public notice and hearings.

What should I do if conditions are violated?

Document the violations of the conditions and the water quality impacts. Submit a complaint to the federal agency that issued the permit, the state agency that issued the certification and the permittee. Send a copy of your complaint to your EPA Regional office. If there is no response, or if the response is inadequate, consider filing a 60-day notice of intent to sue. The Clean Water Act citizen suit provision gives you the right to sue the permit holder to enforce 401 conditions (CWA, Section 505(f)(5), Chapter 8).

What should I do if water quality problems arise after the 401 certificate is waived?

Unfortunately, this is a much trickier situation. Because the 401 certification is considered a "discretionary duty" for your state or any other certifying agency, citizens may not use the CWA to sue the certifying agency for waiving their right to make sure that all activities occurring within their jurisdiction, that require a federal license or permit, comply with water quality standards. Because states have individual regulations for implementing Section 401, there may be some states that allow for citizen appeal when a certification is intentionally or automatically waived. Otherwise, you would need to examine the provisions of the federal permit that was issued to see whether it protects water quality.

Action checklist

Section 401 Certification

1. Get on your state's mailing list for public notices of proposed 401 certifications in your basin.
2. Find out how many 401 certifications your state has issued in the last year. Review a few to see what kinds of practices they have required and approved. In particular, find out whether and how your state conditions and certifies general permits from the Army Corps of Engineers for dredge and fill activity or from EPA if they issue NPDES permits in your state.
3. If draft 401 certifications do not address your concerns about a proposed activity, submit comments to your state agency.
4. If completed 401 certifications do not address your concerns, and permitted activities are causing water quality problems, consider taking the state agency to state court for inadequate conditions. If the 401 certification is good, but the permittee is not abiding by the conditions, discuss your concerns with your state agency, and consider filing a 60-day notice of intent to sue the permittee for noncompliance (CWA, Section 505(f)(5), Chapter 8).
5. Contact the federal agencies that grant permits and licenses to identify current and proposed activities in your basin that require water quality certification. For instance, if development of wetlands or construction in water bodies is an issue in your area, contact the Army Corps of Engineers. If new dams are proposed or existing ones are up for relicensing, contact the Federal Energy Regulatory Commission. When licenses or permits are up for renewal, check with the state to find out whether permittees are applying for state water quality certification. Urge the state to fully exercise its privilege of water quality certification when applications are being submitted. If no 401 certification application is submitted to the state, and the permit is issued, you should evaluate the citizen enforcement opportunities against the permittee for failing to submit a 401 certification (CWA, Section 401(a)(1)) and agianst the federal permitting agency for failing to require a 401 certificate.

Using 401 to Protect Streamflow in the Dosewallips River

The Dosewallips River originates in the glacial peaks of the Olympic National Park, a World Heritage Site and International Biosphere Reserve. While dams blanket the state of Washington, the Dosewallips runs free.

The Dosewallips was caught in a power struggle between Washington state and the federal government. The struggle began in 1982, when Jefferson County Public Utility District and the city of Tacoma proposed to build a new hydroelectric project on the Dosewallips River.

The Elkhorn Project, named after a nearby Forest Service campground, would divert water from the river to generate electricity and discharge the water back to the river a little more than one mile downriver. About 75 percent of the water would leave the river for power generation.

Because the project required a license from the Federal Energy Regulatory Commission, it also needed a Clean Water Act, Section 401 certification from the state of Washington certifying that the project was in compliance with state water quality standards.

The quality of the Dosewallips River was highly regarded by the state, which designated it as "Class AA" waters, the highest designation possible. Uses for the stretch of river affected by the hydro project include salmon migration, rearing, spawning and harvesting. The state's water quality standards mandate that these "existing beneficial uses shall be maintained and protected and no further degradation which would interfere with or become injurious to [such] . . . uses will be allowed."

The Washington Department of Ecology, relying on the expertise of the region's fisheries agencies and tribes, determined that the salmon fishery in the Dosewallips would be harmed if the project withdrew the amount of water it proposed for electrical generation. The agency required, as a condition of certification, a minimum instream flow ranging between 100 and 200 cfs, depending on the season.

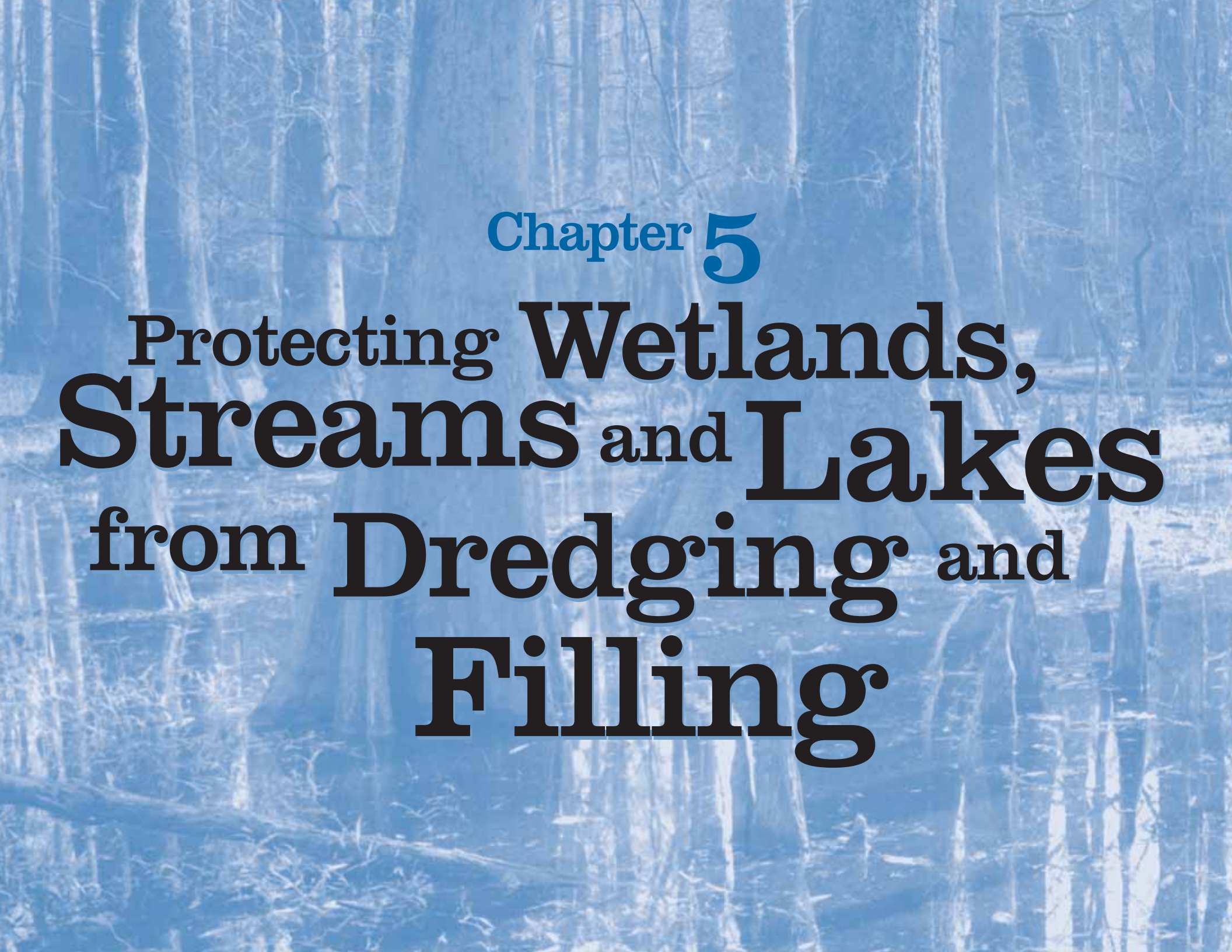
Tacoma challenged the state's authority to condition the certification on a minimum instream flow, but the Washington Supreme Court concluded that the instream flow requirement was a proper exercise of state authority under Section 401. It also held that states may impose any conditions which are reasonably necessary to enforce numeric and narrative criteria. The Court pointed out that Washington's standards specify that "aesthetic values shall not be impaired." This ruling appeared to conflict with a California court decision that favored less state authority in a similar case.

The U.S. Supreme Court agreed to resolve the conflict concerning the proper scope of Section 401. The Court affirmed the Washington Supreme Court in a seven-to-two opinion. The Court rejected the attempts to defeat the instream flow requirement imposed by Section 401 conditions.

Most importantly, the Supreme Court held that the use designations of water bodies — such as the salmon fishery on the Dosewallips — could form the basis of Section 401 conditions. The Court found there may well be occasions when the criteria alone would not protect the designated uses. ◆

This story has been excerpted from Ransel, Katherine P., "The Sleeping Giant Awakens: PUD No.1 of Jefferson County v. Washington Department of Ecology," 25 Envtl. L. 255 (1995).

For more information, contact American Rivers' Northwest Regional Office. (www.amrivers.org)



Chapter 5

Protecting Wetlands, Streams and Lakes from Dredging and Filling

"Waters of the United States"

The term "waters of the United States" means:

"(1) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(2) All interstate waters including interstate wetlands;

(3) All other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which would or could affect interstate or foreign commerce including any such waters:

(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or

(ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(iii) Which are used or could be used for industrial purposes by industries in interstate commerce;

(4) All impoundments of waters otherwise defined as waters of the United States under this definition;

(5) Tributaries of waters identified in paragraphs (s)(1)-(4) of this section;

(6) The territorial sea; and

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1)-(6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Act (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA."

(40CFR230.3(s); also found at 40CFR232.2)

© Pete Lavigne

Gravel mining on the Willamette River, Oregon

Protecting Wetlands, Streams and Lakes from Dredging and Filling

If you are concerned about development activities affecting wetlands, streams or lakes in your area, you need to be familiar with Section 404 of the Clean Water Act, which regulates dredging and filling. This section explains when a 404 permit is required, what it requires, and how you can influence the permitting process.

Who issues permits and leads enforcement of Section 404?

The Army Corps of Engineers (Corps) is the lead agency for issuing and enforcing 404 permits owing to its historical jurisdiction over navigable waters. The EPA also plays an advisory and oversight role. In practice, the Corps is the agency that most citizens will deal with.

What does Section 404 require?

Under Section 404, anyone who proposes an activity that would discharge dredged or fill material into waters of the United States (sidebar at left) is required to apply for a permit from the U.S. Army Corps of Engineers.

The 404 permit process requires applicants to demonstrate that they have followed certain steps in a particular order, known as "sequencing":

AVOID the impact: First, applicants must identify and evaluate alternatives. If the proposed activity does not absolutely have to be conducted in or near the water (i.e., is not "water-dependent"), the permitting agency is supposed to presume that there is a practicable alternative that would have a less adverse impact on the aquatic ecosystem (40CFR230.10(a)(3)).

MINIMIZE the impact: Second, if there is no alternative site or method for the activity, the applicant is required to demonstrate how it can occur with minimal impact to the water body by specifying particular practices that take the location, nature and dispersion of the discharge into account (40CFR230.70-77).

MITIGATE any impact: Third, only after the applicant and the Corps determine that the impact is unavoidable and will be minimized should plans for mitigation be discussed.

Theoretically, any activity that causes an appreciable impact by moving even a small amount of earth (discharging) into a water body (such as mud from the wheels of construction vehicles) is regulated under Section 404.

If an activity is regulated under Section 404, then a permit is required before the activity can proceed. Because the 404 permit is federal, it triggers the need for state water quality certification (Chapter 4) and, in some cases, an Endangered Species Act consultation. The trigger for additional review can be the most powerful aspect of Section 404.

In reality, however, many activities that require 404 permits are carried out without going through the permitting process. Unfortunately, none of the protections in Section 404 can be exercised unless the activity is permitted. For this reason, citizens need to make sure that activities in their watershed are formally permitted by the Corps.

Who has the burden of proof to evaluate alternatives?

The law places the burden of proof squarely on a permit applicant to demonstrate that any particular dredge or fill discharge into any waters of the U.S. is (a) unavoidable and (b) the least environmentally-damaging *practicable alternative* to achieve the basic purpose of the project (40CFR230.10(a)).

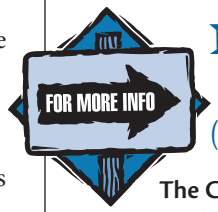
State Control of 404 Activities

It is possible for states to take over some of the responsibility for administering the 404 program, whether through assumption of the program, general permits or some other agreements.

Issues of concern regarding state administration include:

- **whether and how Section 401 (state water quality) certification is required (Section 401 certification is triggered by the federal 404 permit);**
- **citizen access to challenges in federal court;**
- **public notice on individual permits; and**
- **loss of Endangered Species Act consultation.**

Michigan and New Jersey have taken on parts of the 404 program.



Roadmap to Dredge and Fill Permitting (404(b)(1) Guidelines)

The Clean Water Act, in Section 404(b)(1), requires that guidelines be developed to protect waters from discharge of dredged and fill materials. Thus, the guidelines that were developed and codified into regulation are referred to as the "404(b)(1) Guidelines," and they can be found at 40CFR230.

The regulations state in the purpose and policy section:

> **"Fundamental to the Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern."**

(40CFR230.1(c))

Nationwide Permit 29 – Single Family Housing

Nationwide Permit 29 allows discharges of dredged or fill material into non-tidal waters of the US, including non-tidal wetlands, for the construction or expansion of a single-family home and attendant features (such as a garage, driveway, storage shed and/or septic field). The activity must meet the following criteria:

- **The discharge does not cause the loss of more than 1/4-acre of non-tidal waters of the US, including non-tidal wetlands;**
- **The permittee has taken all practicable actions to minimize the on-site and off-site impacts of the discharge. For example, the location of the home may need to be adjusted on-site to avoid flooding of adjacent property owners;**
- **The discharge is part of a single and complete project;**
- **Sufficient vegetated buffers must be maintained adjacent to all open water bodies, streams, etc., to preclude water quality degradation due to erosion and sedimentation.**

(www.usace.army.mil/inet/functions/cw/cecwo/reg/nwpcond.htm; ww.usace.army.mil/inet/functions/cw/cecwo/reg/decdoc96/29nwdd96.pdf)

What are practicable alternatives?

Practicable alternatives are those that achieve the same basic project purpose, are not unreasonably costly (though they may produce less return on investment), are owned by the applicant or are available during permitting and are feasible.

Some examples of practicable alternatives to a development project are:

- Relocating the project to environmentally-preferable site.
- Reconfiguring the footprint of the project or increasing the density of development.
- Reducing the scale or number of planned residential or commercial units.

What types of permits are available under Section 404?

Section 404 regulations allow the issuance of **individual** and **general** permits. An **individual permit** is usually required only when an activity is expected to have "significant" impacts. Otherwise, for discharges expected to have minimal adverse effects, the Army Corps of Engineers grants general permits. As in the NPDES process, **general permits** are developed and adopted in a generic format to include broad categories of activities (e.g., minor road crossings and utility line activities) as a means of speeding up the permitting process. They may be issued on a **nationwide, statewide or regional basis.**

General permits are allowed for categories of activities if

- the activities are similar in nature and in their impact on water quality and on the aquatic environment, and
- the activities will have only minimal adverse effects on water quality and on the aquatic environment separately or cumulatively.

(40CFR230.7(a))

Even a general permit must ensure an analysis of practicable alternatives and the selection of the one that would have the least adverse impact. In addition, a general permit should not allow any activity that a) will cause or contribute to a violation of state water quality standards or a significant degradation of waters or b) would jeopardize threatened or endangered species or cause adverse modification to their critical habitat (40CFR230.7(b)(1)).

Like general NPDES permits, general "nationwide" permits for dredge and fill activity, once developed, are typically allowed to cover activities with little or no review of site-specific considerations and no public notice. Though each activity may be small, the cumulative impacts of "small" disturbances permitted under the general permits system have been severe in many watersheds. For this reason, it is important to make sure that the conditions of general permits are adequately protective

from the start. State agencies may exercise their right to review nationwide and individual permits for compliance with water quality standards (Section 401, Chapter 4) and to impose permit conditions to ensure they will comply.

One of the most significant general 404 permits is "Nationwide Permit 29" (NWP29) for the building of single-family homes. NWP29) pre-approves smaller fills and requires only minimal tracking for fills less than 1/4 acre in size (sidebar at left). In many watersheds, the most common wetland fills are small residential fills. Thus, the effect of NWP29 has been to make it easier for developers to obtain permits for the very activities that collectively cause significant problems in many of the nation's watersheds, such as excessive sedimentation, erosion and loss of habitat.

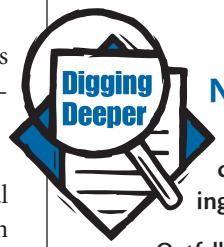
Does a 404 permit require evaluation of cumulative dredge and fill impacts?

Yes, at least in theory. The 404(b)(1) guidelines state that cumulative effects "should be predicted to the extent reasonable and practical" by collecting information from other sources and considering it during the evaluation of individual permit applications, the issuance of general permits, and as part of the monitoring and enforcement of existing permits (40CFR230.11(g)(2)). In practice, however, meaningful evaluation of cumulative impacts seldom if ever takes place. Citizens should insist on cumulative water quality impact evaluations in the 404 permit process.

Are there exemptions to Section 404 permits?

The Clean Water Act and the implementing regulations exempt many activities from Section 404 requirements. These activities include ongoing farming, ranching and forestry practices, maintenance activities, construction or maintenance of farm or stock ponds or irrigation ditches, construction of temporary sediment basins on a construction site, and construction or maintenance of farm, forest or temporary roads (CWA, Section 402(f)(1), 40CFR232.3(c)).

These practices do require a permit, however, IF the dredge or fill material contains specific toxic pollutants, or IF dredging or filling will create a new use for the water that will impair the flow or circulation or reduce the reach of the waters of the United States (CWA, Section 404(f)(2), 40CFR232.3(a)-(b)). If agricultural activities do require a permit, they are most likely covered by Nationwide Permit 40, which permits activities including the installation, placement or construction of drainage tiles, ditches or levees; mechanized land clearing; land leveling; the relocation of existing serviceable drainage ditches constructed in waters of the U.S.; and similar activities, provided the permittee complies with the terms and conditions in the permit.

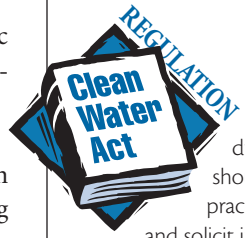


Nationwide Permits

The Corps issues "Nationwide Permits" that cover numerous categories of activities, including but not limited to the following:

- Outfall Structures and Maintenance
- Oil and Gas Structures
- Bank Stabilization
- Utility Line Work
- Linear Transportation Projects
- Hydropower Projects
- Minor Dredging
- Surface Coal Mining
- Headwaters and Isolated Waters Discharges
- Single-Family Housing
- Maintenance of Existing Flood Control Projects
- Maintenance Dredging of Existing Basins
- Boat Ramps
- Clean Up of Hazardous and Toxic Waste
- Residential, Commercial and Institutional Developments
- Mining (aggregate, hard rock)

These activities are permitted as long as they comply with the specific criteria for each one. Although the 404(b)(1) guidelines call for evaluation of cumulative adverse impacts within each category, this does not typically occur. Regulations for the nationwide permit program can be found at 33CFR330.



Evaluate Cumulative Impacts

"Cumulative effects attributable to the discharge of dredged or fill material in waters of the United States should be predicted to the extent reasonable and practical. The permitting authority shall collect information and solicit information from other sources about the cumulative impacts on the aquatic ecosystem. This information shall be documented and considered during the decision-making process concerning the evaluation of individual permit applications, the issuance of a General permit, and monitoring and enforcement of existing permits."

(40CFR230.11(g)(2))

© Pete Lavigne

An isolated wetland near Lyle, Washington.

How can damage be mitigated in the 404 process?

Mitigation in the 404 context means to offset the loss of an aquatic site. Mitigation can include:

- preservation: purchasing or otherwise protecting an existing high-quality wetland;
- enhancement: making an existing wetland "better";
- restoration: restoring a wetland, for instance, by taking out old dikes or levees; or
- creation: making a wetland where there never had been one before.

Preservation and enhancement of wetlands can be important in the context of a larger plan, but if, in choosing one of these forms of mitigation, a wetland loss is allowed, the total wetland acreage in your watershed is reduced. The creation of a new wetland is considered the least desirable form of mitigation, because it is usually difficult or impossible to create the same values that are being lost. Restoration is usually the best bet.

Digging Deeper

Mitigation Banking

Mitigation banking typically involves offsite wetland restoration, creation, enhancement, and in exceptional circumstances, preservation when such compensation cannot be achieved at the development site or would not be as environmentally beneficial. It typically involves the consolidation of small, fragmented wetland mitigation projects into one large contiguous site. Units of restored, created, enhanced or preserved wetlands are expressed as "credits" which may subsequently be withdrawn to offset "debits" incurred at a project development site.

FOR MORE INFO

Citizen Challenges to Isolated Wetland Destruction

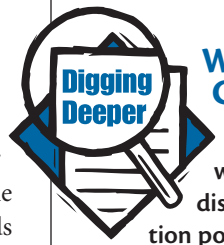
Visit the National Wildlife Federation website (www.nwf.org/ourprograms/).

Are isolated wetlands protected by the Clean Water Act?

In January 2001, the United States Supreme Court issued an important Clean Water Act ruling regarding "isolated" wetlands. The Supreme Court, in *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers,* concluded that Congress had not granted the Corps jurisdictional Clean Water Act authority over "isolated" wetlands used by migratory birds (known informally as the Migratory Bird Rule). Prior to what is now known as the "SWANCC decision," the Corps had promulgated a broad regulatory definition of "waters of the U.S." that afforded federal protection for almost all of the nation's wetlands, including "isolated" wetlands and other intermittent waters. These waterways provide significant landscape functions such as flood attenuation, water quality maintenance and wildlife habitat, particularly for migratory waterfowl. Yet, the decision, as interpreted by some Corps regulators, may leave many "isolated" wetlands and other water resources unprotected by the CWA. A few states have developed their own laws to specifically regulate isolated wetlands, though some of the state "fixes" are not as strong as the pre-SWANCC 404 protection.

What are the broader consequences of the SWANCC decision?

In January of 2003, the EPA and the Corps began a rulemaking process to officially narrow the scope of Clean Water Act protections. At that same time, they also issued guidance for the Corps district offices that focuses Clean Water Act protection primarily on interstate, navigable waters. The proposed narrower definition of what constitutes "waters of the United States" removed from Clean Water Act protection "isolated"wetlands (such as prairie potholes and pocosins) as well as non-navigable tributaries of traditionally navigable waters, intermittent and ephemeral streams, and waters that pass through human-made conveyances. According to this new interpretation, wetlands may be defined as "isolated" if they lack a direct surface connection to other bodies of water — despite the fact that they are almost always connected to other waters by groundwater or seasonal surface overflows and contribute to the ecosystem's health by filtering many pollutants for downstream waters. At the time of publication, the Bush Administration had decided not to go ahead with the controversial rulemaking, but the guidance document remains in place. As a result, the Corps district and field offices are issuing many letters of "no jurisdiction" when they believe that no 404 permit is required for projects that might adversely affect isolated wetlands. Even if state law regulates the wetlands now excluded from CWA protection, the process and protections associated with the state permitting process are seldom as thorough or as protective as the Corps 404 permitting process. Numerous challenges have been brought across the country to assert the more narrow ruling by the Supreme Court, and thus secure greater CWA protections for isolated wetlands (sidebar at left).



Wetland-Specific Water Quality Criteria

Ohio has created a wetland designated use, wetland-specific narrative criteria, criteria for discharges to wetlands and a wetland antidegradation policy.

The narrative criteria read as follows:

(A) The hydrology necessary to support the biological and physical characteristics naturally present in wetlands shall be protected to prevent significant adverse impacts on:

(1) Water currents, erosion or sedimentation patterns; (2) Natural water temperature variations; (3) Chemical, nutrient and dissolved oxygen regimes of the wetland; (4) The movement of aquatic fauna; (5) The pH of the wetland; and (6) Water levels or elevations, including those resulting from ground water recharge and discharge.

(B) (1) Water quality necessary to support existing habitats and the populations of wetland flora and fauna shall be protected to prevent significant adverse impacts on:

(a) Food supplies for fish and wildlife; (b) Reproductive and nursery areas; and (c) Dispersal corridors...

(2) Water quality shall be protected to prevent conditions conducive to the establishment or proliferation of nuisance organisms...

(C) Conditions shall not occur that will have a significant adverse impact on the ability of the wetland to be used for wetland-dependent recreational opportunities in or on the water."
(OAC 3745-1-51)

Visit http://www.epa.state.oh.us/dsw/rules/3745-1.html and look for OAC 3745-1-50 through 3745-1-54 for more details.

Identifying Wetlands

Three characteristics are used to identify wetlands:

Vegetation – are plant communities specially adapted to wetlands present? Consult a local guide to wetland plants.

Soil – are "hydric" soils present? Hydric soils have characteristics that indicate they were developed where oxygen was limited by the presence of water for long periods. Consult your local office of the Natural Resource Conservation Service.

Hydrology – is water present for long periods during the growing season?

Many of the largest wetlands are identified on National Wetlands Inventory maps available from the US Fish & Wildlife Service.
(http://wetlands.fws.gov)

EPA Wetlands Information

(http://www.epa.gov/owow/wetlands/)

What state oversight of 404 permits does the Clean Water Act provide?

As discussed in Chapter 4 and above, Section 401 of the Clean Water Act calls for states to review water quality impacts of all federal permits or licenses, including 404 permits, within their boundaries. Under Section 401, states and tribes can review all activities that require federal permits or licenses for compliance with applicable water quality standards. They can approve, condition or deny certification of a 404 permit (including general nationwide permits) or waive the right to review it altogether. By requiring this review, Section 401 of the Act offers veto authority to states and tribes on any 404 permit. If the state denies the 401 certification, the 404 permit cannot be issued.

What is the EPA's role?

The EPA shares the duty of enforcing Section 404 with the Corps (and the states that have taken over parts of the program). It develops and interprets environmental criteria used in evaluating permit applications, oversees state authority, identifies activities that are exempt from regulation, and reviews and makes comments on individual permit applications. Section 404(c) of the Clean Water Act also authorizes the EPA to override a Corps decision based on "unacceptable adverse effect" on municipal water supplies, shellfish beds and fishery areas, wildife or recreational areas. If the EPA believes unacceptable adverse effects will occur, it informs the Corps that it may veto the permit in question. The EPA says it has issued very few vetoes.

Do other agencies oversee dredging or filling operations?

The granting of a 404 permit (including a general permit) is a "federal action" for purposes of the Endangered Species Act. Thus, if a listed species may be affected, a 404 permit request triggers the need for a consultation with the relevant agency (either NOAA Fisheries or U.S. Fish and Wildlife Service) under Section 7 of the Endangered Species Act, even on private land. State wildlife agencies also may comment on permit applications.

Does the Clean Water Act provide grant money to the states for wetlands protection?

The State Wetlands Protection Grant Program was initiated in 1990. It provides money to states for the development of wetland water quality standards, and Section 401 certification programs. Section 319 money can also be applied to improve wetland protection (Chapter 6). Look for ways that you can influence the use of these funds to improve wetland functions in your watershed.

Rainbow Springs, Missouri.

Influencing the 404 Permitting Process

What is the public's role?

The public needs to play an active role in the 404 permitting process. For individual permits, citizens can comment on permits, defend important wetland values, offer alternatives to the regulators and permit applicants on how wetland impacts can be avoided or minimized, and insist on sufficient mitigation if any destruction of wetlands will occur. However, since most 404 activities fall under general permits, there is little or no opportunity for public participation in most site-specific permit decisions. For this reason, the public must be very actively involved when general and individual permits are developed or renewed every five years (in theory). If significant adverse effects on water quality or the aquatic environment may result from any proposed activity, the public can request that the Corps, the EPA or the state require an individual 404 permit rather than a general nationwide permit.

How to Review and Comment on a 404-Removal/Fill Permit Notice

A 404 Permit Notice provides a summary of the project, maps, mitigation information, deadlines for comments, the name of the applicant and the Army Corps Project Manager whom you may contact for more information.

- *Get a copy of the permit.*
- *If you have concerns and plan to submit comments, call the Corps project manager to get a better understanding of the proposal and to express your concerns. Project managers are often in the field; leave a detailed voice mail message to keep the process moving.*
- *You may call the consultant listed on the public notice and ask for a site visit. S/he can also provide you with additional information such as wetland delineation maps and/or upland alternatives analysis.*
- *Write a letter to describe your concerns. How does the project impact wetlands, streams, water quality, flooding, erosion, fish and wildlife? If you are aware of upland alternatives, mention them. Encourage avoidance and minimization of the impacts. Include the permit application number so your comments are applied to the appropriate project.*
- *Send copies of your letters to the U.S. Fish & Wildlife Service, NOAA Fisheries (if applicable), your state wildlife agency, the state water quality agency and your local planning department. Coordinate your comments with fish and wildlife agencies for maximum effectiveness.*
- *Be aware of deadlines. The official comment period only lasts 15-30 days.*

What is the official process for public input?

For individual permits, members of the public can participate in the permit process. This process includes the following steps:

Public Notice. The Corps issues this notice within 15 days of receiving a complete individual permit application. The notice provides detail about the proposed dredging or filling activity, its location and its potential environmental impact. The notice invites comment within a specified time. Citizens can call the regional office of the Corps to get on the mailing list for permit notices.

Public Comment. The comment period is usually open for 15 to 30 days. Comments are reviewed by the Corps.

Public Hearing. A hearing is not typically held, but members of the public can ask the Corps to conduct one. Members of the public can also request a public hearing of the state water quality agency to review the same project under the Section 401 process.

Permit Evaluation. The Corps evaluates the permit, based on facts in the record.

Environmental Assessment and Statement of Finding. The Corps explains its decision on whether to grant or deny the permit.

Notification. The Corps is required to notify potentially interested parties such as adjacent landowners, but often does not.

(40CFR233)

What can I do to ensure that mitigation requirements are strong enough?

Studies show that the record for mitigation success is dismal. Mitigation projects have suffered from ill-conceived plans, inadequate maintenance and insufficient funding. In some cases, the projects have never actually happened or the mitigation site has been destroyed by subsequent development.

To prevent such failures, get involved in the negotiations for mitigation requirements, and insist on the following elements to ensure a good mitigation project:

- a comprehensive grading, planting and maintenance plan, including long-term maintenance;
- on-site mitigation that is adjacent to or near the impacted wetland;
- a site that has the conditions (wetland soils and appropriate hydrology) necessary for the project to succeed;
- an easement or other protection of the property so that it cannot become a site for future development;

- assurance of adequate water rights (where applicable) to maintain the mitigation site;
- a long-term monitoring and reporting plan with measurable performance standards; and
- bonding or some other assurance of long-term maintenance.

Ask the Corps whether it will require the permittee to replace all the functions, values and benefits that the soon-to-be impacted wetland provides to the community. It is not enough to replace just the lost acreage. For example, a duck pond has different functions and values than a bog. In practice, to replace the functions and values fully, the permittee should restore more acres than are proposed for impact. After all, the chances of mitigation failure are high, and even if the mitigation is successful, it may take decades before the new site is fully functional. A good tactic is to make sure the developer cannot proceed to new stages of a development project (grading, laying the foundation, occupancy) until the various stages of the mitigation are complete. Make sure this is a condition of the permit.

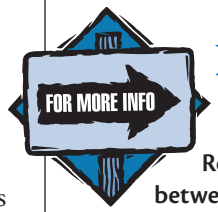
How are 404 permits enforced?

Based on a 1989 Memorandum of Agreement between the Corps and the EPA (sidebar at right), the Corps will act as the lead enforcement agency for all violations of Corps-issued permits and for most unpermitted discharge violations. The EPA will act as the lead enforcement agency when an unpermitted activity involves a repeat violator or a flagrant violation, when EPA requests enforcement over a particular case or class of cases, or when the Corps recommends that an EPA administrative penalty action may be warranted.

The lead enforcement agency shall determine, based on its authority, the appropriate enforcement response taking into consideration any views provided by the other agency. An appropriate enforcement response may include an administrative order, administrative penalty complaint, a civil or criminal judicial referral or other appropriate formal enforcement response.

Citizens can play an important role by identifying projects that are not complying with their 404 permit. Document adverse impacts or violations of 401 conditions and notify the Corps, your regional EPA office and the state water quality agency. Citizen suits (Section 505, Chapter 8) are allowed when 401 conditions are not being met. Unfortunately, that means a bad project must commence before you file a 60-day notice.

In addition, some experts argue that citizens can sue a permittee for a lack of a 404 permit when it is required. It can be technically interpreted as a discharge without a permit.



Enforcement of 404 Permits

Review a 1989 Memorandum of Agreement between the Corps and the EPA at www.eps.gov/owow/wetlands/regs/enfmoa.html.

Action checklist

Dredge and Fill Permits

1. Get on the list for public notice of dredge and fill permits in your basin.
2. Get to know your local Army Corps of Engineers staff.
3. Ask questions of state agencies (water quality, natural resource, and fish and wildlife), university researchers and consulting firms to find out how much of your watershed has been filled, altered or disturbed by dredging and filling, and by what activities. Inform agencies about new projects in your basin.
4. Ask your local Army Corps of Engineers office for a list of general (nationwide, regional, statewide) permit applications in your watershed, and then comment on individual impacts. Insist on individual permits when impacts are likely to be significant.
5. When general 404 permits are developed or revised, participate actively. Address cumulative impacts within specific general permits and across all general permit categories in your basin.
6. Find out whether your state has specific wetland designated uses and water quality criteria. If not, ask whether and how the state water quality standards apply to wetlands.
7. Call your state water quality agency about Section 401 certification for all individual and general permits in your basin. Raise questions about potential violations of water quality standards, especially regarding implementation of the state's antidegradation policy.
8. Find out how the filling of wetlands is factored into the development of TMDLs. Are dredge and fill projects considered sources of sediment? Are fill projects considered as changes to hydrology? Is planned future development (involving 404 permits) taken into account in the implementation process?
9. Support adequate staffing and funding for wetland protection in your state agencies and in regional offices of the Corps and the EPA.

Practicable Upland Alternatives Must be Pursued

State and federal wildlife agencies often comment on Section 404 wetland fill permit applications. By calling these agencies when you receive a public notice, you can raise their awareness of fish and wildlife impacts associated with the project and gather information to strengthen your comments.

In January 2000, the Tualatin Riverkeepers and the Friends of Rock, Bronson and Willow Creeks consulted with the U.S. Fish & Wildlife Service and the Oregon Department of Fish and Wildlife in the development of comments on a sewer line project along Dawson Creek and Rock Creek north of Hillsboro Oregon. The project threatened to run a sewer line down creek corridors for 2.7 miles with a total of 33 stream crossings and impacts to 16.3 acres of wetlands. The wildlife agencies raised concerns about destruction of habitat for sensitive species including cutthroat trout, pacific lamprey, red-legged frogs and western pond turtles.

The applicant preferred a gravity-fed system down the creek corridor that required no pumping. The wildlife agencies and the citizen groups argued that an alternative route outside the corridor was practicable, even though it required pump stations. Ultimately, the Corps of Engineers agreed and the permit was denied. ◆

For more information, contact Brian Wegener with Tualatin Riverkeepers (bwegener@tualatinriverkeepers.org).

Chapter 6

Nonpoint Source Pollution Control

River Network Collection

Erosion on the Donner and Blitzen River, Oregon

Nonpoint Source Pollution Control

In 1987, when Congress amended the Clean Water Act, Section 319 was added. Section 319 established a national program to control nonpoint sources of pollution (also known as polluted runoff). In program guidance, the EPA defines nonpoint source pollution as "…caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, other coastal waters, and groundwater. Atmospheric deposition and hydrologic modification are also sources of nonpoint pollution." (2003 319 Guidance.

How can Section 319 help control nonpoint source pollution?

Section 319 contains three main strategies for addressing polluted runoff:

- requiring states to prepare assessments of their nonpoint source pollution problems,
- requiring states to develop management programs to address the problems identified in their assessments and
- creating a grant program that allows the EPA to fund state programs for nonpoint source assessment and control.

How do I find out whether my state has conducted an assessment and established a nonpoint source management program?

All states completed their initial assessments and established their first approved nonpoint programs by 1990. Although not required by the Act, the EPA and the states have worked together to update assessments and programs. EPA guidance in the mid-1990s required states to update their programs, a process that was completed for all states by 2001. The states are now scheduled to review, evaluate and revise their nonpoint source assessment and program at least once every 5 years, as required by the guidance. You can contact your state Section 319 coordinator for documents and specific information related to your state's nonpoint source problems, threats and management program.

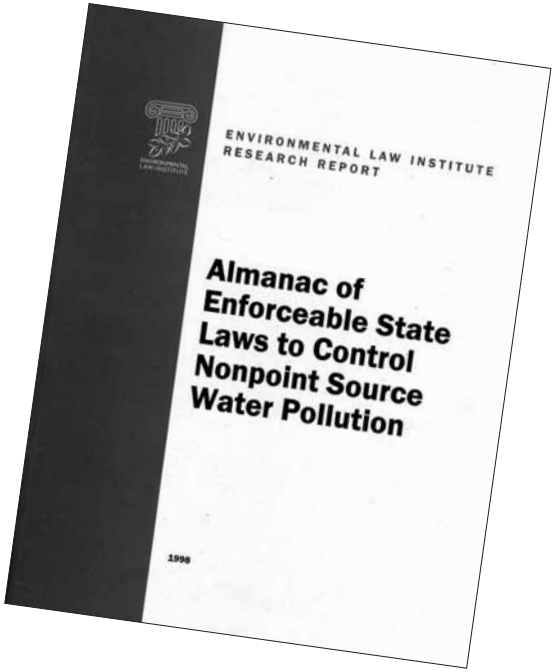
What should the state's nonpoint source management program include?

Section 319 requires each state to create and implement a nonpoint source management program. Each state program must identify the best management practices that will be employed to control nonpoint source pollution in the state and the specific programs (local, state, federal) that will be used to implement the selected management practices. In addition, a schedule for implementation must be developed that includes milestones for measuring the progress of the state program (CWA, Section 319(b)(2)(A)-(C)).

Enforceable Nonpoint Source Pollution Control

"Enforceable State Mechanisms for the Control of Nonpoint Source Water Pollution," Environmental Law Institute, 1997. (http://www.epa.gov/owow/nps/elistudy/)

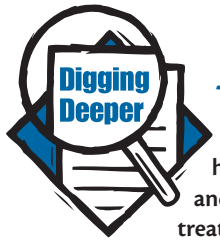
"Almanac of Enforceable State Laws to Control Nonpoint Source Water Pollution," Environmental Law Institute, 1998. (www.elistore.org/reports.asp)



"Satisfactory progress"

"No grant may be made under this subsection in any fiscal year to a State which in the preceding fiscal year received a grant under this subsection unless the Administrator determines that such State made satisfactory progress in such preceding fiscal year in meeting the schedule specified by such State under subsection (b)(2)."

(CWA, Section 319(h)(8))



Tribes and the 319 Program

Tribes are also eligible for 319 grants. Tribes must have EPA-approved nonpoint source assessments and management programs and have approval for treatment in a similar manner as a state.

Currently, more than 80 Tribes, comprising over 70 percent of Indian country, meet the eligibility requirements (2003 319 Guidelines), yet few tribes have applied for 319 money.

The CWA allows EPA to reserve one-third of one percent of 319 funds for eligible tribes (CWA, Section 518(f)). However, for fiscal years 2000 to 2003, the Congress has allowed the EPA to exceed this cap - allowing more 319 funds to flow to Tribes.

Tribes are required to meet the 40 percent matching requirements. However, if a tribe can show financial cause, the match requirement can be reduced to 10 percent.

How do Section 319 grants work?

Congress appropriates funds for the 319 grant program annually. These funds go to the EPA, which then distributes grants to the states based on a formula. The formula calculates each state's grant based on factors such as population, cropland acreage, critical habitat acreage and others. According to the Act, funds cannot be granted to any state that did not make "satisfactory progress" with its nonpoint program during the previous fiscal year (CWA section 319(h)(8)). However, this requirement has rarely been invoked.

Each state can use up to 10 percent of its 319 funds to administer its nonpoint source management program (2003 319 Guidance). The remaining funds are usually distributed through state-run pass- through grant programs. They can also be used by the state agency to implement specific nonpoint source control projects.

How much money is available under 319?

Nationally, the current amount of money allocated to the 319 program has decreased from $238.4 million in fiscal year 2003 to $207.3 million in fiscal year 2005 (U.S. EPA). Individual grants from state-run pass through programs vary widely. Some states appear to be moving toward fewer, larger grants targeted at particular watersheds. However, a survey of state programs showed grants ranging from $1,000 to more than $100,000. Some states even have two tiers of grants — traditional larger grants and smaller grants with a quicker turnaround and less paperwork required.

Who qualifies for 319 grants?

Eligibility varies from state to state. Where the state water quality agency has established its own grant program with 319 funds, other state agencies, local governments, nonprofit organizations and others are usually eligible for grant funds. In most states, for-profit organizations and federal agencies are not eligible.

What types of activities do Section 319 grants support?

Traditionally, 319 projects have included information and education programs, demonstration projects that showcase innovative technologies, and water quality monitoring. Today, 319 project grants are increasingly targeted at site- and watershed-specific activities designed to restore degraded watersheds. (p. 136, "How are 319 grants prioritized?")

© Pete Lavigne

A-jacks are installed on the Upper Skagit River in Washington to control erosion.

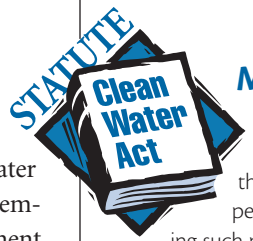
What cannot be funded by Section 319 grants?

Section 319 funds cannot be used for lobbying or research, to implement any NPDES permit requirements, or for other point source related projects. During the last few years, 319 money has been specifically authorized for stormwater control projects associated with municipal stormwater NPDES permits. Additional limitations may apply to your state's program. It is important to remember that 319 grants are meant to fund implementation of the state nonpoint source management plan, so management measures and activities not in the plan will not be eligible for funding.

No more than 10 percent of state 319 funds can be used for administrative costs. (Generally, the state passes that restriction on to the specific grants as well.) Administrative costs include salaries, overhead or other indirect costs. However, the 10 percent limitation does not apply to certain activities such as enforcement, education, technical assistance and demonstration projects. Contact your state agency to clarify this limitation before you apply.

Is there a match requirement for a 319 grant?

Yes. States are required to provide a 40 percent match to the federal 319 grant. Many states pass the match requirement on to grantees. The required match on state 319 grants is usually 40 percent, but it ranges from 0 percent to 50 percent. Tribal 319 recipients can sometimes be eligible for reduced match requirements.



Match Requirements

"The Federal share of the cost of each management program implemented with Federal assistance under this subsection in any fiscal year shall not exceed 60 percent of the cost incurred by the State in implementing such management program and shall be made on condition that the non-Federal share is provided from non-Federal sources."

(CWA, Section 319(h)(3))

Watershed-Based Plans Required

Beginning in FY 2004, the EPA requires that the following components be included in "watershed-based plans" for every 319 project designed to address impaired waters:

a.) An identification of the causes and sources that will need to be controlled to achieve load reductions.

b.) An estimate of the load reductions expected for each management measure (see c).

c.) A description of the management measures to be implemented and an identification of the critical areas for implementation.

d.) An estimate of the amount of technical and financial assistance needed as well as the associated costs and the authorities relied on for implementation.

e.) An information/education component.

f.) An implementation schedule.

g.) Interim milestones to measure progress.

h.) A set of criteria to determine whether load reductions are being achieved over time and a mechanism for revising the plan or TMDL if needed.

i.) A monitoring component that ties to the criteria described in h.

(Nonpoint Source Program and Grants Guidelines for States and Territories. Fed. Reg. Vol. 68, No. 205, 60653-60674, 10/23/03)

How are 319 grants prioritized?

Current EPA guidance stresses the need to focus 319 dollars on 303(d)-listed impaired water bodies. This focus includes development of TMDLs and watershed-based plans for impaired waters and actual restoration projects. However, some funds are still available for projects in unimpaired watersheds - especially threatened watersheds or those with special status such as drinking water sources or habitats of threatened and endangered species.

Most states follow the national guidance and prioritize funding in impaired water bodies. In addition, states may consider a range of other factors such as match amount, public support for the project, technical merit and nature of the threat (e.g., public health threats at a swimming beach or potential harm to an endangered species). Many states also have priority areas - usually watersheds - where funding is focused.

What are "base" and "incremental" funds?

In FY 1999, national 319 appropriations were increased by $100 million to $200 million. The purpose of the additional $100 million was to develop and implement restoration strategies. The additional $100 million are called **"incremental funds"** while the original funds are called **"base funds."** Each state receives a portion of incremental funds and of base funds. In fiscal year 2005, the combined appropriation was $207.3 million, (down by more than $30 million from its peak in fiscal year 2003 (U.S. EPA presentation, 1/05).

Base funds can be used to support any activity described in the state's nonpoint source management plan. In other words, these funds can be used to restore impaired waters and to protect unimpaired waters from future problems. Up to 20 percent of the base funds can also be used to develop TMDLs and/or watershed-based plans for waters that are not 303(d) listed. This 20 percent can also be used to conduct monitoring or program development.

In guidance, EPA requires that incremental funds be used "…to develop and implement watershed based plans that address nonpoint source impairments in watersheds that contain 303(d) listed waters." Projects funded with incremental dollars must have a watershed-based plan that includes specific elements (sidebar at right). States can use up to 20 percent of the incremental funds to develop TMDLs and watershed-based plans for impaired waters, but the majority of the funds must be used to implement restoration.

How do I apply for a 319 grant?

The application process varies from state to state. Generally, the states send out a "request for proposals" once a year. The request describes the application process and grant requirements. Contact your state 319 coordinator and ask to be added to the mailing list for 319 grant notices. Keep

in mind that many states have a long lead-time on proposals. Some processes take as long as year or two from the request for proposals to actual funding.

Can I find out how my state spends its 319 dollars?

Yes. States are required to report annually on their progress in meeting nonpoint source management program milestones. This report should include information on reductions in nonpoint source pollution, improvements in water quality as a result of program activities and information about projects funded through the program. Contact your state 319 coordinator and request the most recent report.

Can I influence how 319 money is spent?

Yes. The most obvious way to influence grants is to apply for one yourself! Alternatively, you might support other applicants from your watershed by writing a letter of support for their application, providing in-kind support or otherwise adding value to their project. In some states, citizens can also participate on an advisory committee that reviews grant proposals and makes program recommendations.

How do I change the system if I am unhappy with how my state manages 319 funds?

The public participation requirements of the 319 program are frustratingly weak. States are not required to hold public hearings or to take comment on the 319 grant program. However, many states do take public comment on their 319 program revisions (at least every five years) - giving you a chance to voice your concerns. Other alternatives include meeting with the state agency or elected officials, or expressing your concerns directly to the EPA. Remember, states are required to show "satisfactory progress" in their program before receiving each year's new funding, and the EPA is charged with reviewing that progress.

✓ Action checklist

Section 319 grants

1. **Find out your state's process for administering section 319 grants. Ask about 319 projects in your watershed. Let your local watershed organization know about this money source.**
2. **Get on the 319 grant mailing list.**
3. **Ask how your state's 319 money is used.**
4. **Review how the incremental funds are being used to restore watersheds.**
5. **Encourage your state to make grants for projects at the local level.**

Creative Ways to Use Section 319 Funds

If you could hire an enforcement officer to protect your watershed, would you do it? Amigos Bravos of New Mexico found a creative way to do just that…and more. With a three-year $75,000 Section 319 grant and $50,000 in matching funds, Amigos Bravos will tackle pollution problems in the Red River watershed. Their project will address off road vehicle (ORV) use, which contributes to erosion and runoff problems in the watershed. Because of these problems, a Total Maximum Daily Load (TMDL) clean up plan was created for turbidity and stream bottom deposits on the Red River.


© Amigos Bravos

As is true in many states, New Mexico's 319 grants are closely tied to the TMDL program. In fact, New Mexico only grants 319 funds for on-the-ground projects in watersheds with a watershed restoration action strategy and a TMDL in place.

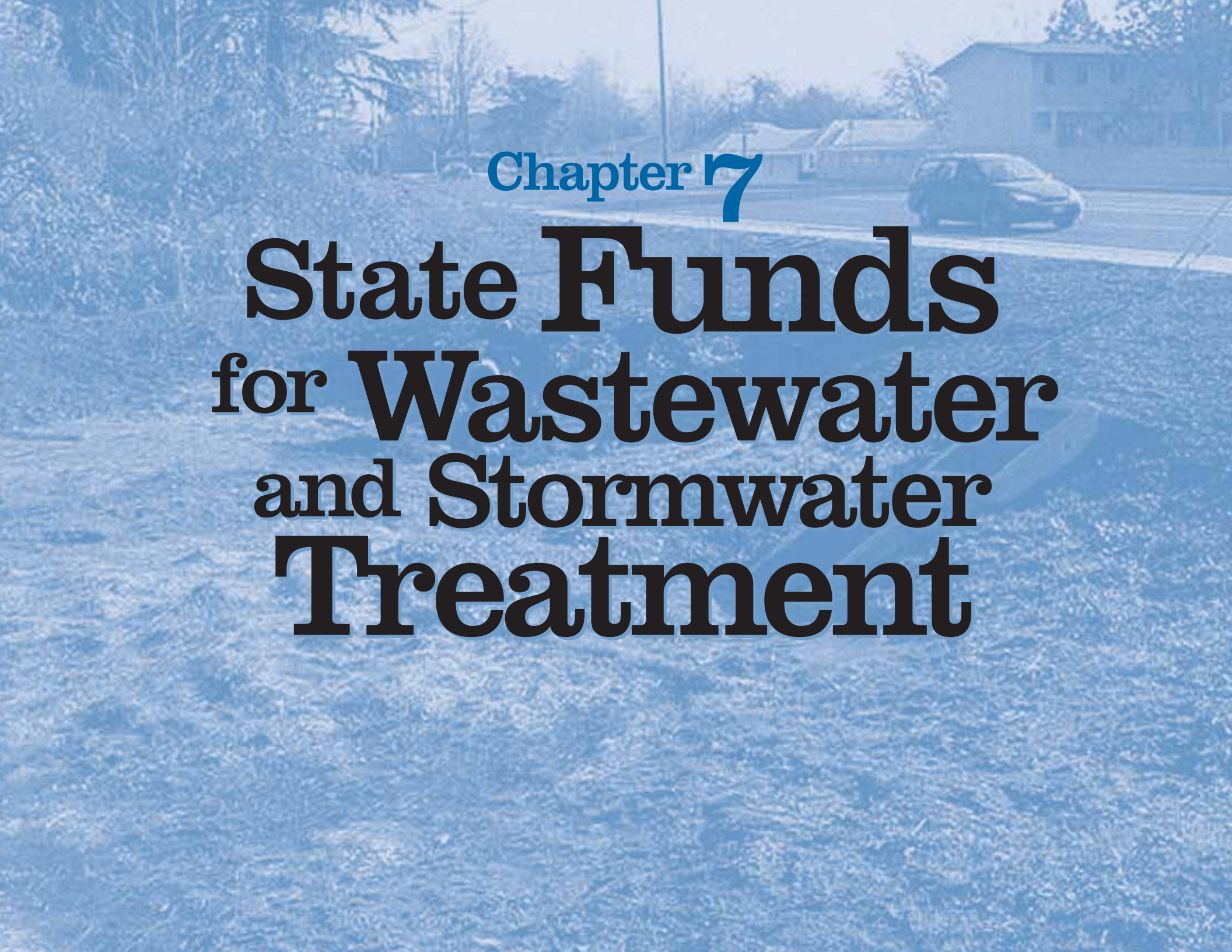
"I think many of the reasons our 319 proposal was successful are very basic," says Rachel Conn, Clean Water Circuit Rider for Amigos Bravos. "We talked with the agency staff before submitting our proposal, shared a draft with them, and made sure our request was on target. We made sure we provided the specific details the state requested in the same format they needed for easy review. And Amigos Bravos has a good reputation as a group who can get the work done."

The Red River Project will reduce pollution problems and help implement the TMDL for the watershed by reducing illegal ORV use. Amigos Bravos plans to implement three main strategies in this project: mapping and reclamation of existing illegal roads, public outreach and education, and enforcement of ORV regulations.

Amigos Bravos and their partners — which include the U.S. Forest Service and the Red River Watershed Group — will reclaim and close two to three illegal roads annually. They will host two public education meetings and distribute educational materials to ORV users at gas stations, hotels and other venues. Amigos Bravos and the Forest Service will also partner to hire a seasonal enforcement officer charged with educating ORV enthusiasts and, where necessary, fining irresponsible ORV users.

This combination of hands-on work, education and enforcement will mean the Red River will again flow clear. With creative thinking, Amigos Bravos has turned the voluntary 319 program into a multifaceted tool for river restoration. ◆

For more information, contact Rachel Conn with Amigos Bravos (rconn@amigosbravos.org).



Chapter 7

State Funds for Wastewater and Stormwater Treatment

State Revolving Fund

Title VI of the CWA is devoted exclusively to the State Revolving Fund program. The implementing regulations for the program are found at 40CFR35 Subpart K.

Origins of the State Revolving Fund

When Congress passed the Clean Water Act in 1972, it made an historic financial commitment to help local governments construct and rehabilitate sewage collection and treatment facilities. This commitment yielded huge benefits for waters across the nation.

However, by the mid 1980s, the federal government no longer had the money to pay for everything that local governments still needed to do. Many fiscal conservatives and environmentalists argued that the federal government should no longer have to pay. They pointed out that local governments had never been promised that federal grants for sewage treatment plants would last forever. In a new financial and political climate, the "State Revolving Fund " was born.

Instead of paying directly for sewage treatment works, the federal government would "capitalize" SRF programs. States would make low-interest loans, not grants, to local governments. States were expected to ensure the financial stability of these programs and to ensure that funded projects were environmentally sound and cost-effective — consistent with national policies for the responsible use of federal money. These ideas became law when the Clean Water Act was amended in 1987, and the SRF program was established.

Sewage treatment plant in Manchester, New Hampshire.

Clean Water State Revolving Funds

The Clean Water Act authorizes federal block grants to states to provide low-interest loans for communities, individuals, citizens' groups, non-profits and others to improve the quality of water through a wide range of water-quality related projects. These loans are administered through "State Revolving Funds" (SRFs).

What is a "State Revolving Fund?"

Each state and five U.S. territories operate their own Clean Water State Revolving Fund. These funds are established with sizable EPA grants and additional funding from state bonds and interest on repaid loans. The SRFs operate like banks, providing low-interest loans (average 2.2%) for water quality improvement projects.

States are given considerable latitude for administration and use of these funds. There are, however, several important federal rules that states must follow. Citizens who know the rules can help make sure states follow them properly and spend the funds effectively.

How much money is in these funds today?

In total, the assets of all Clean Water State Revolving Funds exceed $50 billion. Annual Congressional appropriations to help states build up their SRFs have dropped dramatically from $1.35 billion in fiscal year 2004. The fiscal year 2006 appropriation is likely to be $850 million. Fiscal year 2003 allotments to states ranged from $0.2 million for Pennsylvania to $146.2 million for New York.

What is expected of the states?

Amendments to the Clean Water Act established the federal SRF program in 1987. Before initially receiving these grants, states had to demonstrate to the EPA that they had:

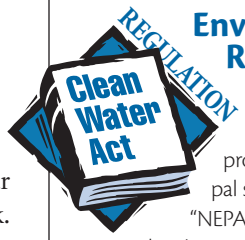
- set up financial management procedures necessary to ensure the long-term health of the fund;
- established a system for setting annual priorities for use of the funds;
- put procedures into place for regular, substantive public involvement; and
- established a "NEPA-like process" that loan applicants and state agencies would have to follow (40CFR35.3140(b)).

What is a "NEPA-like process?"

NEPA stands for National Environmental Policy Act. Passed in 1970, NEPA ensures that federal actions are evaluated for environmental impacts. Under NEPA, a proposed federal action with the potential for significant environmental impact is subject to an Environmental Assessment (EA). If the action is deemed likely to have a significant impact, an Environmental Impact Statement (EIS) is required. An EIS is a detailed study of the need for, alternatives to and impacts of the action. Public involvement is integral to a NEPA process. The public can:

- help determine whether an EIS is required for a project;
- provide environmental, economic and social information that is important to the decision-making process; and
- express opinions about the crucial judgment calls that public officials must often make after all this information is gathered and evaluated.

A state's "NEPA-like process" need not be identical to the federal process, but it must rest on the same basic principles. Without a sound environmental review process, Clean Water SRF money may be wasted on poorly-conceived or unnecessarily expensive projects. Many states have included a checklist of specific environmental requirements in their SRF regulations (e.g., no adverse cumulative impact to receiving waters) that projects must meet before they can be funded. Citizens can help to ensure that their state enforces requirements on this checklist thoroughly.



Environmental Review Requirements for SRF

When considering State Revolving Fund loan requests, states may either apply the same environmental review processes used in the old EPA grant program for municipal sewage treatment facilities or develop their own "NEPA-like" environmental review process. State environmental review procedures must meet minimum requirements spelled out in 40 CFR 35.3140 and Subpart K, Appendix A, which reads:

"The following criteria will be used by the EPA to evaluate a proposed SERP (State Environmental Review Process):

A. ***Legal foundation.*** *Adequate documentation of the legal authority, including legislation, regulations or executive orders and/or Attorney General certification that authority exists.*

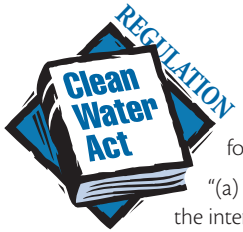
B. ***Interdisciplinary approach.*** *The availability of expertise either in-house or otherwise accessible to the State Agency.*

C. ***Decision documentation.*** *A description of a documentation process adequate to explain the basis for decisions to the public.*

D. ***Public notice and participation.*** *A description of the process, including routes of publication (e.g., local newspapers and project mailing list), and use of established State legal notification systems for notices of intent, and criteria for determining whether a public hearing is required. The adequacy of a rationale where the comment period differs from that under NEPA and is inconsistent with other State review periods.*

E. ***Consider alternatives.*** *The extent to which the SERP will adequately consider:*

1. *designation of a study area comparable to the final system;*
2. *a range of feasible alternatives, including the no action alternative;*
3. *direct and indirect impacts;*
4. *present and future conditions;*
5. *land use and other social parameters including recreation and open-space considerations;*
6. *consistency with population projections used to develop State implementation plans under the Clean Air Act;*
7. *cumulative impacts including anticipated community growth (residential, commercial, institutional and industrial) within the project study area; and*
8. *other anticipated public works projects including coordination with such projects."*



Intended Use Plan Rules

The rules for state SRF Intended Use Plans (IUPs) are found at 40CFR35.3150.

"(a) Purpose. The State must prepare a plan identifying the intended uses of the funds in the SRF and describing how those uses support the goals of the SRF. This Intended Use Plan (IUP) must be prepared annually and must be subjected to public comment and review before being submitted to EPA.

EPA must receive the IUP prior to the award of the capitalization grant.

(b) Contents—

(1) List of projects.

(i) The IUP must contain a list of publicly owned treatment works projects on the State's project priority list developed pursuant to section 216 of the Act, to be constructed with SRF assistance. This list must include: the name of the community; permit number or other applicable enforceable requirement, if available; the type of financial assistance; and the projected amount of eligible assistance.

(ii) The IUP must also contain a list of the nonpoint source and national estuary protection activities under Sections 319 and 320 of the Act that the State expects to fund from its SRF…"

Corrective Action

See 40CFR35.3170 for the rules regarding EPA's obligation to take corrective action when deficiencies with SRF programs are apparent.

What types of projects do SRFs typically fund?

State Revolving Fund loans can be made for:

Sewage treatment: construction, expansion or rehabilitation of "publicly owned treatment works" (including municipal sewage collection, treatment, recycling, land application and disposal facilities).

Nonpoint source pollution control: implementing a management program under Section 319 of the Act (Chapter 7).

Estuary protection: developing and implementing a conservation and management plan under Section 320 of the Act (the National Estuary Program).

Stormwater treatment and management: improving stormwater management within municipal separated storm sewer systems (MS4s) through structural and non-structural means, such as installation of bioinfiltration swales.

Most SRF loans to date have paid for "brick, mortar and big pipe" projects to collect, treat and dispose of sewage in traditional ways. However, more states are funding innovative projects to manage and treat sewage and stormwater in less conventional ways and to improve watershed health apart from those systems, such as through stream restoration efforts (Local Story, p. 146). The EPA reports that over $100 million is spent annually on nonpoint source pollution control and estuary protection. This is still a small percentage of the total $4 billion available in SRFs.

Are typical SRF projects the best use of these monies?

In many situations, traditional sewer projects are neither the best nor the most cost-effective way to address community wastewater needs. Traditional sewer projects can increase pollution at the point of discharge to receiving waters and can physically degrade tributaries where collector sewer lines are typically placed. Traditional projects may also encourage and subsidize sprawl by extending or expanding wastewater infrastructure without regard for growth planning. The long-term, indirect adverse water quality effects of sprawl can easily outweigh the positive direct water quality benefits these projects bring.

Because traditional wastewater projects tend to be expensive, a heavy emphasis on such projects in a state's SRF portfolio can quickly consume most or all of the available loan money for pollution control. This approach leaves little or no funds for a host of smaller-scale, less expensive, non-structural projects for point and nonpoint source pollution control, such as reduction of stormwater runoff and improvement of infiltration to reduce sewer overflows.

River Network Collection

A stormwater swale in Beaverton, Oregon.

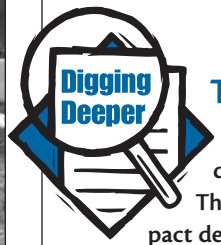
What other types of projects could the SRF fund?

The EPA and some environmental groups are promoting a more balanced use of SRF loans to address the highest priority problems in a given watershed. They are also promoting much more careful evaluation of SRF projects — especially expensive ones — to ensure that they are cost-effective and do not have adverse ecological effects. Public interest groups can play an important role in directing these funds to the places they are most needed. Innovative applications of SRF monies have included assigning a lower loan interest rate to a traditional project when non-structural stormwater pollution control is included (p.146).

Where can I get information about my state's SRF?

Many states have extensive information about their SRF program on their websites with links to project scoring systems, environmental review requirements and other useful program information. River Network has collected SRF contacts for each state in our CWA database (www.rivernetwork.org/cleanwater/cwa_search.asp).

Every year, each state publishes two documents that anyone interested in the SRF program



The Link to "Smart Growth"

In recent years, some states have begun to develop systems for encouraging "smart growth." These systems typically encourage efficient, compact development as an antidote to sprawl and the associated environmental harm and economic inefficiency.

Many of these systems are built on the recognition that intelligent wastewater planning can support smart growth, and that shortsighted wastewater planning can actually undermine smart growth by encouraging and subsidizing sprawling development patterns. Some cities are now deciding where they want growth to occur and prohibiting the extension of sewer lines into other areas.

The South Carolina Coastal Conservation League has been a national leader in illustrating the importance of linking wastewater planning to land use planning, and EPA's SRF office has developed fact sheets to explain the link to smart growth.

- South Carolina Coastal Conservation League: (843) 723-8035; www.scccl.org
- U.S. EPA-SRF/SmartGrowth: http://www.epa.gov/owm/cwfinance/cwsrf/factsheets.htm#8mart

EPA Clean Water State Revolving Fund Information

EPA posts annual reports on SRF loans, summary data by state and nationally, many fact sheets and much more on the Clean Water State Revolving Fund. (http://www.epa.gov/owm/cwfinance/cwsrf/)

Practical, Cost-Effective Wastewater Management Techniques

Over the past decade there have been many advances in the field of wastewater management. The merits of traditional "brick, mortar and big pipe" projects should be evaluated against smaller, "low-tech" alternatives that often do the job as well or better, have fewer adverse effects, and cost far less. The National Small Flows Clearinghouse is a very good source of information on the range of alternatives available for small communities and newly developing areas.

To contact National Small Flows Clearinghouse:
(800) 624-8301; (304) 293-4191;
Web site: http://www.nesc.wvu.edu/nsfc/nsfc_index.cfm.

should obtain. The first is the state's annual SRF report, which shows how much money was spent on projects, and for what purposes, during the past year. The second is the state's annual Intended Use Plan (IUP), which indicates priorities for future loans. You may also want to obtain a copy of the state's capitalization grant agreement with the EPA which spells out the terms of the program.

What if my state is not following the SRF rules?

If a state fails to follow EPA rules or meet all conditions of its capitalization grant agreement, the EPA may issue a "finding of noncompliance." If such a finding is made, the Regional Administrator must prescribe the necessary corrective action. EPA's corrective action must remedy the specific instance(s) of noncompliance and require adjustments in program management to avoid similar problems in the future. If the state fails to take the required corrective actions within 60 days, new SRF grant funds may be withheld. If the state fails to take the necessary actions within twelve months, any funds withheld must be reallocated to other states (40CFR35.3170).

Is the SRF program only for public projects?

One of the most important emerging questions is whether SRF loans are exclusively for public projects or whether they should also be available to help private interests, such as operators of concentrated animal feedlot facilities, install pollution control systems.

Supporters of opening SRF loans to the private sector contend that it would accomplish more pollution control in many watersheds. Opponents say that operators of private facilities should use private capital to pay for their required pollution control systems, which should be viewed simply as a basic cost of doing business.

Some states allow " state or a local governments to administer SRF loans to private entities such as individual farmers or landowners for qualified pollution prevention projects.

Action checklist

State Revolving Fund

1. Obtain copies of:
   - Title VI of the Clean Water Act (http://www.epa.gov/region5/water/pdf/ecwa_t6.pdf).
   - The regulations supporting it at 40CFR35, Subpart K (http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm).
   - Your state's SRF capitalization grant agreement with the EPA.
   - Your state's rules regarding the administration of the SRF program.
   - The guidlines for your state's "NEPA-like process" and the letter from the EPA Regional Administrator that approved it.
   - The most recent SRF program Annual Report for your state.
   - The current Intended Use Plan for SRF funds in the coming year.
2. Review these documents — especially your state's environmental review process and minimum federal requirements — for consistency.
3. Bring any inconsistencies and their potential consequences to the attention of the state, the EPA and statewide public interest organizations.
4. Get a copy of your state's nonpoint source pollution management plan (Chapter 6). Encourage your state to prioritize SRF projects that implement the plan.
5. Find out whether your state required any assessment of environmental and economic consequences of SRF projects in the past year.
6. Find out what criteria your state uses in determining whether a SRF project requires an official examination of environmental impacts.
8. Find out what SRF projects are currently proposed for your area. Take advantage of the public involvement procedures in your state's "NEPA-like process" to advocate for environmentally sound, cost-effective SRF projects that address important problems in your watershed.
9. Find out when the public comment period regarding the next Intended Use Plan will occur.
10. During that period, submit written comments and/or appear at the public hearing to support good SRF projects in your watershed and offer alternatives to questionable SRF projects.

Hard Infrastructure Dollars Pay for Stream Restoration

Ohio EPA (OEPA) has developed an innovative program that combines conventional sewers and wastewater treatment with "nonstructural" or "green infrastructure" projects to accomplish greater water quality protection. The program, called the Water Resource Restoration Sponsor Program (WRRSP) addresses the fact that local communities and non-profit groups find it unattractive to use the Clean Water State Revolving Fund (CWSRF) loans for stream protection and restoration because they have no dependable revenue stream to repay the loans. Even though nonpoint pollution problems are often the greatest sources of water quality impairment, and CWSRF was created to provide capital for water quality improvement projects, few green infrastructure projects have been proposed for SRF funds.

Theresa Gordon

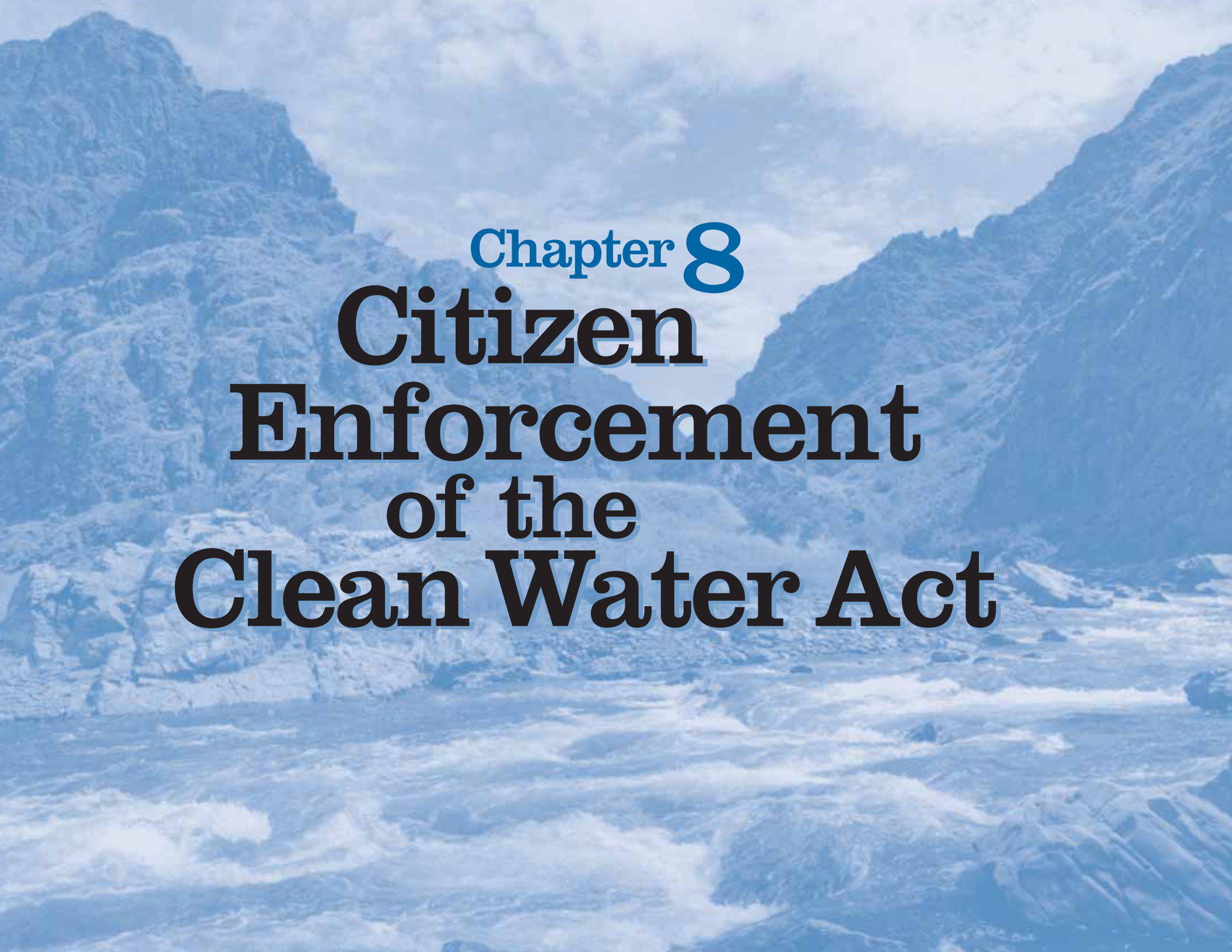
Big Run Creek, Ohio. SRF funds were used to purchase land in the Sciota River Basin. As a result, Big Run Creek is now protected from development.

On the other hand, knowing that wastewater utilities who typically apply for the CWSRF funds tap into their revenue from ratepayers in order to repay loans, OEPA created a program in which wastewater treatment systems have a motivation to "sponsor" green infrastructure or restoration projects as part of one single loan application. The idea behind the program is simple: OEPA offers communities even lower interest rates on loans for wastewater treatment plant improvements if the communities also sponsor projects that protect or restore water resources. For example, if a community comes to the state for a $1 million treatment plant loan and also agrees to do a $200,000 restoration project, the state will lower the loan interest rate so that the total project cost is no greater than it would have been for the $1 million conventional project alone.

A community that participates in the WRRSP does not typically implement a restoration project itself. Instead, it will typically enter into a sponsorship agreement with an implementing partner, such as a land trust or a park district, who develops and implements a habitat protection and restoration plan. The sponsorship agreement does not require the implementing partner to make any repayments on the CWSRF loan. The sponsoring community makes all repayments to the CWSRF.

As a result of this innovative program, by the end of 2003, communities in Ohio used $51 million of CWSRF loan funds for 19 projects to protect and restore 4,000 acres of riparian lands and wetlands and 40 miles of Ohio's stream corridors. Iowa and Oregon recently adopted similar programs. Ohio's "Sponsor" program reinforces the idea that wastewater treatment plant improvements and water resource restoration projects are complementary efforts. ◆

For more information, contact Bob Monsarrat with Ohio EPA ((614) 644-3655) or visit www.epa.gov/owm/cwfinance/cwsrf/ohio_wrrsp.pdf.



Chapter 8
Citizen Enforcement of the Clean Water Act

Citizen suit authority

(a) …any citizen may commence a civil action on his own behalf

(1) against any person … who is alleged to be in violation of (A) an effluent standard or limitation… or (B) an order issued by the Administrator or a State with respect to such a standard or limitation, or

(2) against the Administrator where there is alleged a failure of the Administrator to perform any act or duty under this Act which is **not discretionary**…

(CWA, section 505(a))

River Network Collection

Mobile River

Citizen Enforcement of the Clean Water Act

Now that we have learned how Clean Water Act tools are **supposed to work**, it's time to talk about reality. Many water quality standards, permits and program requirements are violated every day. Ideally, state agencies would have sufficient staff and financial resources to monitor and inspect every activity, every facility and every water body. Realistically, state agencies are underfunded and political challenges keep them from fully enforcing the Clean Water Act.

The Clean Water Act grants private citizens the right to take independent enforcement actions. Under the Clean Water Act, any person or entity that is or may be adversely affected may bring suit in federal court (a) against anyone who is in violation of permit limitations or discharging without a permit or (b) against the EPA for not performing a mandatory duty. These lawsuits are called **"citizen enforcement actions"** or **"citizen suits"** but should not be confused with other lawsuits often filed by citizens or citizen groups challenging the issuance of a permit. (See specific chapters for more information on appealing water quality standards, NPDES permits, TMDLs, 401 and 404 permits.)

Under what circumstances can I bring a citizen enforcement action?

Section 505 of the Clean Water Act authorizes citizens to bring a lawsuit to enforce the CWA under two situations:

1) If there are ongoing violations of a NPDES permit or a 401 certification (or discharges without a permit) and no administrative enforcement action (involving penalties, public notice and a chance to comment) has been taken by the state or federal agency in charge of the permit or

2) If the EPA is not performing mandatory, or otherwise known as non-discretionary, duties.

Keep in mind that general NPDES permits can be enforced by citizens as well. While the general permits usually do not have numeric limits and might not require monitoring, there likely will be narrative requirements that are enforceable. Given the dramatic increase in the number of stormwater general permits, in particular, and the inadequate state inspection and monitoring of these permits, citizen enforcement may be the only way to ensure the municipal, industrial and construction stormwater programs are being fully and properly implemented.

What is meant by ongoing violations?

In order for citizens or citizen groups to successfully file a lawsuit over a permit violation, they must prove either that 1) the violations are ongoing, not just in the past, or 2) that there is at least a reasonable likelihood that violations will occur again (Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Foundation, 108 S. Ct. 376 (1987)). In contrast, state and federal authorities can take enforcement actions for past violations for purposes of remediation or restoration. They may also do this to send a message about the cost of violating the law.

What is considered a non-discretionary duty?

Non-discretionary duties are those that EPA is required by statute and/or regulation to perform, usually by a specific date or within a particular time period. For example, EPA must approve or disapprove state water quality standards within 60 and 90 days, respectively, of state submittal, and approve or disapprove 303(d) lists and TMDLs within 30 days of state submittal. U.S. Army Corps of Engineers must require a 401 certification or a waiver for every 404 permit.

How do I know WHOM I should sue?

Regarding an ongoing permit violation, citizens can file suit against the permittee but not against the state or federal agency that is issuing and failing to enforce the permit. State agencies are NOT required to prosecute every permit violator. In the same way that the police cannot be sued when

Examples of Violations That Can Be Enforced by Section 505 Citizen Suits

Permit-related:

- **Lack of a permit when it is required**
- **Discharges in excess of permit limits**
- **Failure to monitor and/or report**
- **General permit violations (e.g., not submitting Notice of Intent to be covered under the general permit, not meeting a requirement listed in the general permit)**
- **Stormwater permit violations (e.g., not developing a stormwater management plan, not putting BMPs in place, not monitoring and inspecting as required)**

EPA mandatory duty-related:

- **No action during required timeframe for review of or inappropriate approval of state-submitted water quality standards, 303(d) list or TMDL**
- **No consultation with USFWS on approval of water quality standards or TMDL (filed under both ESA and CWA probably)**

Public Interest Environmental Law Centers

There are attorneys willing to work at little or no cost ("pro bono") for environmental groups in almost every state. In addition to those who work alone or for private firms, there is a growing number of environmental law clinics associated with law schools and non-profit environmental law centers who raise money in order to be able to represent non-profit environmental organizations.

River Network has compiled a list of environmental law clinics and centers, and we have created a database for attorneys in private practice to offer their services to watershed groups in need of legal advice. The organizations and individuals are listed by region.

(www.rivernetwork.org/cleanwater/legal.htm)

they choose not to catch everyone who drives over the speed limit, the state agency is required to have an enforcement program that can lead to penalties and prosecution, but they are not expected to catch or enforce every violator.

When the EPA is not performing a mandatory duty, the citizen suit is filed against the EPA. That, for example, is why citizen suits challenging state failures to develop TMDL programs were all filed against the EPA for not exercising its mandatory duty to 'review' inadequate state lists and TMDLs. The lists and TMDLs were inadequate because they did not even exist in the early days.

When do I need a lawyer?

Ideally, you will have access to legal representation as soon as you decide to take steps to enforce a permit or an agency (in)action. It is very likely that the permittee and the agency will each have legal counsel to defend them from the beginning, so keep that in mind.

Realistically, many citizens or citizen groups do not have the resources to hire a lawyer right away. It can be difficult to find an available, affordable attorney with Clean Water Act experience. Around the country, there are many environmental law centers and clinics that raise money to enable them to represent environmental organizations. There are also many private practice attorneys that offer pro bono (free of charge) legal assistance for environmental cases. Since the CWA citizen suit allows for the recovery of attorneys' fees, someone may be willing to take on a case based on an expectation that they will win and recover their fees and expenses. Try to track someone down who has experience with your issue and the related process. (sidebar at left)

What do I need to do first?

You must send a formal 60-day notice of intent to sue to the alleged violator of the CWA whether it be an individual, a corporation, or a local, state or federal agency. The chief administrative officer of the state water pollution control agency, the EPA Administrator and the regional EPA Administrator must also be sent copies. If the alleged violator is a federal agency, the U.S. Attorney General must be notified as well (CWA, section 505(b)(1)(B), 40CFR135.2).

Sixty-day notices do not necessarily have to be filed by attorneys. It helps to have counsel, but the basic elements of a 60-day notice can be provided by any concerned citizen. If the permit violator or the EPA does not act, a lawyer can be brought onboard at that time.

What must be in a 60-day notice?

The 60-day notice has specific requirements. When a permit is violated, the notice "shall include sufficient information to permit the recipient to identify the specific standard, limitation, or order alleged to have been violated, the activity alleged to constitute a violation, the person or persons responsible for the alleged violation, the location of the alleged violation, the date or dates of such violation, and the full name, address, and telephone number of the person giving notice" (40CFR135.3(a)).

When a mandatory duty has not been performed by EPA, the notice "shall identify the provision of the Act which requires such act or creates such duty, shall describe with reasonable specificity the action taken or not taken by the Administrator which is alleged to constitute a failure to perform such act or duty, and shall state the full name, address and telephone number of the person giving the notice" (40CFR135.3(b)).

Under both situations above, the notice must include the name, address, and telephone number of the legal counsel, if any, representing the person giving the notice (40CFR135.3(c)).

These requirements change occasionally. They can be found in the CWA regulations online at http://www.gpoaccess.gov/cfr/index.html.

If all the requirements of the 60-day notice are not fulfilled, the notice will be invalid, and your case may be thrown out. Defendants work very hard to get cases thrown out on technicalities. Don't give them that opportunity — protect your right to present and defend the merits of your complaint.

What research is necessary before sending a 60-day notice?

It is important to compile the following information:

- why you or your organization has a right to enforce the Clean Water Act in a particular water body - establish "standing"(sidebar at right);
- the permit requirements, exact statute and/or regulations that are being violated or not performed;
- what the polluter has done to violate the permit, and when it occurred (in detail, including dates);
- to whom you need to direct the 60-day notice;
- to whom copies of the notice and later, the complaint, must be sent; and
- adequate proof of a permit violation or a dereliction of a mandatory duty.

Before you actually file a lawsuit, you will want to collect documents that will build your case (photos, monitoring data) and line up expert witnesses who will testify. Most CWA citizen suits have been based on monitoring data and information provided by dischargers themselves in monthly Discharge Monitoring Reports (DMRs). The failure to file timely and accurate DMRs is itself a violation of most NPDES permits.

Do not file hastily conceived or frivolous notices. They waste everyone's time: the EPA's, your state's and yours. They can also move water quality protection efforts backward, not forward. A good rule of thumb is never to file a 60-day notice on any issue unless you are fully prepared to back it up with a lawsuit.

What is Standing?

An individual or group must have "standing" to file a Clean Water Act lawsuit. This means they must have a connection to the adverse impacts that have been caused by a facility that is out of compliance with its permit or by the EPA not performing a mandatory duty. For example, you may need to prove that some of your members use or live on the stretch of river downstream from a permit violation or an unpermitted discharge.

To demonstrate standing in federal court, a person must show a "reasonable concern" over the environmental harm caused by the allegedly unlawful activity to a specific body of water which that person has reason to care about (i.e., uses or lives on) (Friends of the Earth, et al., v. Laidlaw Environmental Services Inc., 120 S.Ct. 693 (2000)).

Action checklist

Citizen Enforcement

1. **Raise some funds to support your effort.**
2. **Collect data that support your claim.**
3. **Document discharges, permit violations or specific mandatory agency duties.**
4. **Establish standing.**
5. **Get in touch with an attorney.**
6. **File a 60-day notice.**
7. **Engage in discussions with the agency and/or the violator.**
8. **File a complaint on day 61, if necessary.**
9. **Engage in settlement negotiations.**
10. **Prepare case and proceed to court, if necessary.**

Where do I file suit?

On day 61, if the regulatory agency has not required compliance or initiated any enforcement action against the alleged violator, or if the EPA has not taken action toward fulfilling its mandatory duty, a lawsuit can be filed. All Clean Water Act citizen enforcement suits — against a permittee for permit violations, against someone for discharging without a permit, or against the EPA for not performing a mandatory duty — must be filed in federal court.

Strategic decisions must be made regarding which case is brought or how a case is brought based on several factors including to which court and to which judge it will be assigned.

What are the penalties for non-compliance?

Civil penalties may be assessed up to $32,500 per day per violation in addition to the plaintiff's attorney's fees. Penalties are not awarded to plaintiffs; they go to the U.S. treasury. In lieu of or in addition to penalties, the court may order the violator to undertake certain remediation for the violations.

As part of a settlement agreement, negotiated to avoid a trial, the violator may agree to **"supplemental environmental projects."** These projects are often designed to help protect or restore the water body that was the site of the violation as well as other waters in the state or region. For example, a violator may be required to pay a fine and establish a fund that can be used to pay for public acquisition of environmentally sensitive lands along one or more water bodies. Parties are also typically free to be more creative with their solutions when they resolve citizen suits through settlement agreements.

Are there other laws that can help in the process?

Countless. See Chapter 10 for brief summaries of other laws such as the National Environmental Policy Act and the Endangered Species Act.

Federal and state Administrative Procedure Acts (APA) are commonly used in conjunction with CWA citizen suits. The federal APA allows citizens to file suit when a federal action (issuance of a permit, approval of state standards, 303(d) list, TMDLs or adoption of a plan, etc.) has been taken in an "arbitrary and capricious" manner (5U.S.C.§552).

Most NPDES permits, though, are issued by state agencies and must be challenged through state proceedings (agency review, board or commission review, administrative law judge or state court). State Administrative Procedure Acts usually dictate how those cases proceed. You may find additional information on appeals in your state water pollution control law as well, if you have one. Track the state procedures down. They are likely to be a useful tool in your advocacy.

An industrial success in Oregon

In the spring of 2004, members of the Northwest Environmental Defense Center, based in Portland, Oregon, were patrolling the Columbia River in kayaks when they witnessed murky, foul-smelling water that was pouring out of an outfall pipe directly adjacent to a large trash-hauling company. The members took pictures of the discharge and decided to learn more about the problem by paying a visit to the state environmental agency to review the company's file.

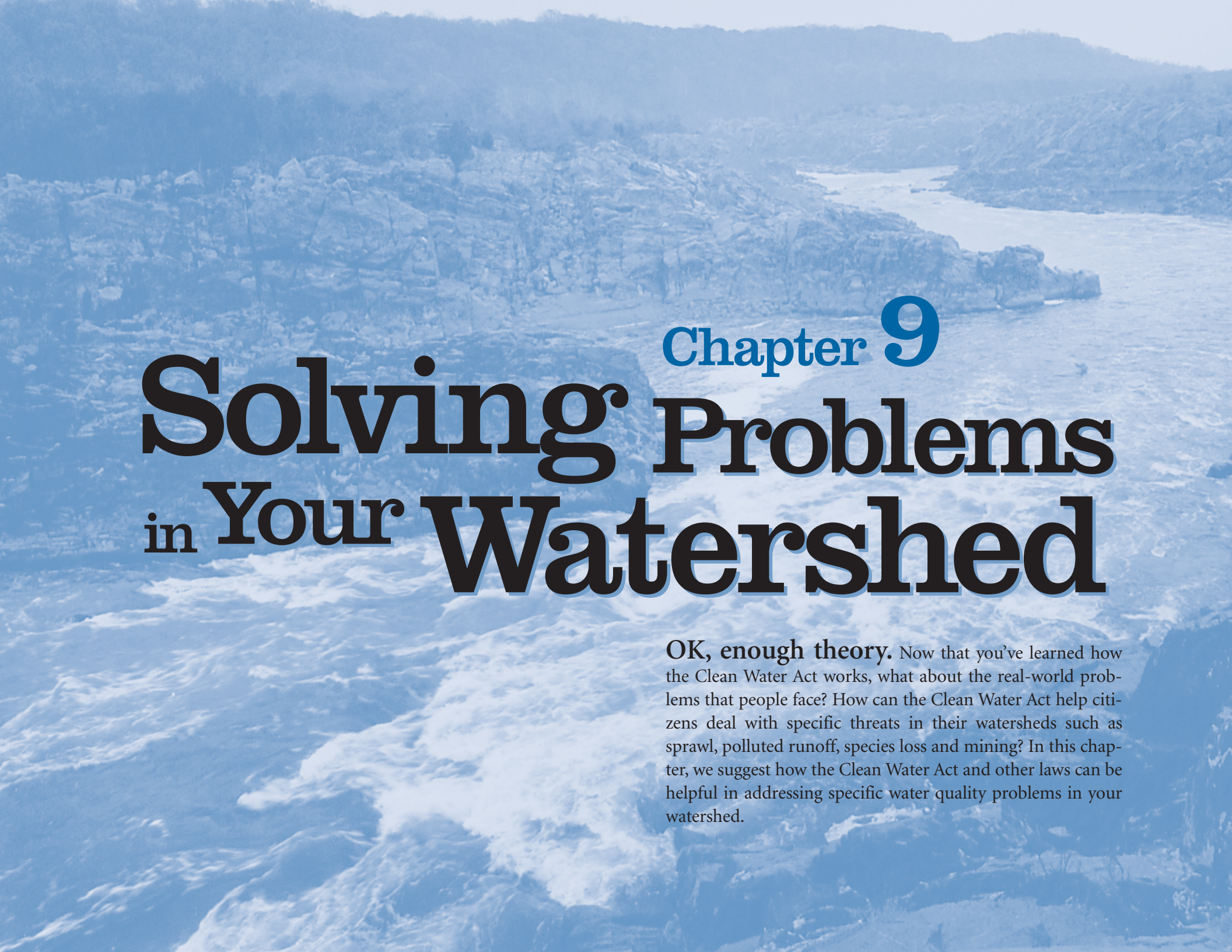
© Northwest Environmental Defense Center

The file demonstrated a long history of NPDES permit violations, primarily related to the discharge of pollutants in excess of permitted levels. The files also contained helpful historical background, including a letter from a consultant engaged by the company many years ago emphasizing the importance of installing a basic treatment system to capture and filter the heavily contaminated stormwater flowing off the site. Unfortunately, it was evident that neither the state nor the company was planning to remedy the pollution problem, so the members decided to take matters into their own hands.

Realizing the hurdles related to building a successful citizen suit, the members made a commitment to visit the area regularly. They also took the further step of chronicling those visits with trip reports and date-stamped digital photographs. Although there was some information in the files establishing the violations, the members decided to collect water quality samples at the company's outfall and have those samples analyzed at a local lab.

After numerous sampling trips that spring, the members felt they had sufficient data to initiate a citizen suit by sending the company a 60-day notice. After extended negotiations, the company agreed to spend nearly a quarter of a million dollars to install basic pollution control technology to stop the pollution. The company also agreed to fund a substantial native plant restoration project in the vicinity of the discharge and to establish an account at a water quality laboratory to provide free scientific analysis of water samples collected by local conservation organizations. Finally, the company agreed to donate funds to a local watershed group for the implementation of curriculum teaching local schoolchildren about the plants, wildlife and ecosystem values of the local waterway. ◆

For more information, contact Mark Riskedahl with the Northwest Environmental Defense Center (msr@nedc.org).



Chapter 9
Solving Problems in Your Watershed

OK, enough theory. Now that you've learned how the Clean Water Act works, what about the real-world problems that people face? How can the Clean Water Act help citizens deal with specific threats in their watersheds such as sprawl, polluted runoff, species loss and mining? In this chapter, we suggest how the Clean Water Act and other laws can be helpful in addressing specific water quality problems in your watershed.

Drinking Water Contamination

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Your drinking water may come from a flowing river, a reservoir or from groundwater. We put great confidence in our ability to treat raw water to make it safe to drink. Nevertheless, the exposure of source water to pollution may result in long-lasting or permanent problems with your drinking water quality.

The 1996 reauthorization of the Safe Drinking Water Act required that all drinking water systems evaluate the quality of and risks to the raw "source water" before it is treated. The intention was to better understand and guard against threats to the source water, and ultimately to reduce the cost of treatment by improving the quality of the source water.

Common threats to source water used for drinking include leaky underground storage tanks at gas stations, runoff or leaching due to excessive pesticide and fertilizer application, bacteria or pathogens, sediment that can clog filtration systems, and urban stormwater pollution (metals, grease, oil and petroleum byproducts).

Impairments in source water may have an affect on drinking water depending on how much treatment occurs and how good that treatment is.

FOR MORE INFO

Clean Water Action (www.cleanwateraction.org)
U.S. EPA (www.epa.gov/safewater/dwh/)

Using the Clean Water Act

- **Water quality standards** — Identify where public water supply or drinking water is a designated or existing use in your watershed. To protect those uses, identify water quality criteria for sediment (total suspended solids), bacteria, pathogens, heavy metals, petroleum by-products (PAHs), pesticides, fertilizer and bioaccumulative toxic pollutants. Evaluate whether the criteria are stringent enough to protect water supply uses. (Chapter 1)
- **303(d)** — Do the waters designated as public water supply support uses and meet water quality criteria? If not, or if they are threatened in any way, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL** — Is there a TMDL scheduled or in progress in your watershed? Is it addressing pollutants that might threaten drinking water quality and treatability? Is maintaining or restoring the safety of drinking water sources addressed in the TMDL? Is the TMDL coordinated with the Source Water Assessment process (SDWA on this page)? (Chapter 3)
- **NPDES** — Are there any permitted discharges upstream or near drinking water intakes? Do permits include mixing zones that suspend water quality standards around and beyond the drinking water intake? No such variance is legal if it is likely to jeopardize existing or designated drinking water uses. (Chapter 2)
- **Antidegradation** — Before a state can issue a permit for an activity that might degrade water quality, an antidegradation analysis must be performed and be subjected to public review. In this analysis, the state must examine whether all existing uses and all outstanding waters would be protected, and, to protect high quality waters, whether all alternatives have been considered with respect to their social and economic impact (such as on drinking water sources). (Chapter 1)

Using other laws (Chapter 10)

- **SDWA** (p. 183) — Is the surface water or groundwater in your watershed used or designated for drinking? Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that all the risks to drinking water sources are included in the assessment and considered by your drinking water provider.
- **CZMA/CZARA** (p. 187) — Amendments to the Coastal Zone Management Act require control of nonpoint source pollution in the "coastal zone." If you are in a coastal watershed that is used for drinking purposes, make sure that protections for drinking water are built into coastal nonpoint source control plans and actions. Many states are applying this law broadly beyond immediate coastal areas.
- **CREP/Farm Bill** (p. 188) — The Conservation Reserve Enhancement Program provides federal money to farmers willing to set aside farmland for conservation and protection. These resources can be instrumental in protecting drinking water from agricultural runoff. Find out whether any money has been directed toward your watershed; encourage use of the program, and introduce the added incentive of protecting surface or ground water quality for drinking.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool to protect against pollutants that might both negatively affect species and contaminate drinking water. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.
- **Local land-use laws** — Is rapid development resulting in pollution of surface waters used for drinking or contamination of groundwater wells by too many septic systems? Use the land-use approval process to protect drinking water resources.

Poor Development and Sprawl

© Pete Lavigne

Prescott Valley, Arizona

Recent research has found that urban sprawl — the dispersed, low density development surrounding cities — can exacerbate non-point source pollution by converting absorbent open space into compacted lawns and increasing impervious driveways, parking lots and roads. Urban and rural sprawl can adversely affect water quality by increasing polluted runoff and flooding and by reducing forest land and wetlands that filter pollutants and hold flood waters.

Nationally, the consumption of land is the signature effect of urban sprawl. For example, between 1970 and 1990, the Chicago region's population grew by 4%, but its land area increased by 50%; Kansas City's population grew by 29% while its land consumption grew by 110%. A study commissioned by the New Jersey Legislature concluded that low-density development consumed 130,000 more acres than a more compact urban form would have, at an additional cost of $740 million for roads and $440 million for sewer and water infrastructure. (citation?) The unnecessary conversion of land to urban use inevitably has water quality impacts, some of which are irreversible.

In Seattle, development around Puget Sound has been blamed for the polluted water and habitat destruction that have decimated local salmon runs. It is projected that development in Maryland will devour as much land over the next 23 years as it has since the state was established, consuming 500,000 acres of forests and farmland. This development will pose enormous threats to water quality in Chesapeake Bay.

Poor land development can also increase the number of miles driven by commuters, change runoff patterns, lead to soil erosion and invite invasive species.

FOR MORE INFO

U.S. EPA (www.epa.gov/smartgrowth/)
Funders' Network for Smart Growth and Livable Communities (www.fundersnetwork.org)
South Carolina Coastal Conservation League (www.scccl.org)

Using the Clean Water Act

- **Water quality standards** — Identify the existing and designated uses downstream of urban, suburban or rural construction sites. Which uses are the most sensitive to polluted runoff from construction sites, overly graded and paved subdivisions, and strip malls? To protect those uses, identify water quality criteria for sediment (total suspended solids), heavy metals, petroleum byproducts (PAHs), pesticides, fertilizer, temperature, bioaccumulative toxic pollutants, habitat, streamflow and biology. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **303(d) list** — Do the waters downstream of construction sites or sprawling development in your watershed support uses and meet water quality criteria? If not, or if they are threatened by planned development, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **NPDES** — NPDES stormwater permits require many municipalities to address construction and post-construction impacts to water bodies. Construction sites (one acre or more) are also required to address their impacts during construction. Check with your state agency about the stormwater pollution permits in your watershed. NPDES wastewater permits that allow new or additional sanitary waste discharge into water bodies may fuel excessive development. Question the need for additional waste treatment capacity. (Chapter 2)
- **Antidegradation** — Before a state can issue NPDES permits for stormwater or additional wastewater that will degrade water quality, an antidegradation analysis must be performed and be subjected to public review. In this analysis, the state must examine whether all existing uses and all outstanding waters would be protected, and, to protect high quality waters, whether all alternatives have been considered with respect to their social and economic impact. (Chapter 1)
- **TMDL process** — Is there a TMDL scheduled or in progress in your watershed? Are poor development practices and sprawling land use patterns included as sources of the impairment? Does the TMDL consider future growth? Have changes to NPDES permits (wastewater and stormwater and stormwater management plans) been included in the TMDL implementation plan? If not, encourage your agency to include them. (Chapter 3)
- **Section 404** — Section 404 requires permits for any discharges of dredged or fill material into "waters of the U.S." Filling a wetland before development or construction of a crossing over a waterway both require a 404 permit. This permit process requires public input on the questions of need, alternatives and cumulative impacts. All projects are required to avoid any impact whenever possible, minimize impacts that are unavoidable, and mitigate for any necessary impact. If the permit is issued, the type of mitigation required is also subject to public comment. (Chapter 5)
- **Section 401** — Section 401 requires state water quality certification for federally permitted and licensed activities that may result in a discharge to water. If water quality standards may be violated by filling a wetland or constructing a waterway crossing, for example, raise those concerns during the public review of the state certification process. Make sure that the agency considers physical and biological criteria upstream and downstream of any development. (Chapter 4)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. In recent years, 319 money has been available to some municipalities to develop their stormwater program. Ask your state water quality agency about how to apply for a 319 grant to reduce the impacts of poor development and sprawl in your watershed. (Chapter 6)
- **State Revolving Fund** — Historically, SRF loans have been directed almost exclusively to sewage collection and treatment projects. Encourage your local and state officials to direct these funds to "non structural" wastewater and stormwater management. Discourage SRF funds for projects such as unneeded expansions of sewer service that will have the effect of encouraging and federally subsidizing sprawl. (Chapter 7)

Using other laws (Chapter 10)

- **Local land-use laws** — Check your state land-use laws and local ordinances. Look for zoning requirements in your watershed that may be encouraging development practices that harm water bodies and their uses. Support growth planning that protects water resources.
- **SDWA** (p. 183) — Is the surface water or groundwater downstream of new construction or development used or designated for drinking? Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the pollution risks to drinking water sources from poor development and sprawl are included in the assessment and considered by your drinking water provider.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against the damaging effects of poor development and sprawl. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.

Poor Stormwater Management

River Network Collection

One of the greatest problems we must address in our watersheds is stormwater pollution. Urban stormwater pollution carries sediment, oils, grease, petroleum byproducts, materials that wear off brakes and tires, asphalt, metals, pesticides and fertilizers from park and lawn management, and toxic contaminants from industrial facilities. Much of this pollution eventually ends up in the nearest water body.

Stormwater pollution is not only an urban problem. Residential and commercial development has led to polluted runoff problems in suburbs. Even in rural areas, stormwater carries sediment off dirt roads, pesticides and fertilizers off lawns, parks and agricultural land, and fluids and solvents from poorly maintained vehicles and machinery.

There is a high correlation between the area of impervious surface in a watershed and the adverse impacts on receiving waters. The more asphalt, the more pollution and the greater the volume of water discharged into the stream.

Pollutants carried into water bodies by stormwater have negative effects on many uses such as aquatic life, recreation and public water supplies. Sediment is known to be one of the pollutants causing the most damage in aquatic environments, for example, by carrying chemical substances into the water, clogging spawning and feeding areas, causing damage to fish gills, and leading to changes in fish communities.

Unnatural high flows, caused by runoff over increasing amounts of impervious surface, result in significant changes to hydrology and stream channels. These high flows scour the stream banks, remove vegetation (which leads to increased temperatures), carry away large debris critical for fish survival, and reduce the opportunity for groundwater recharge.

Long-term effects of poor stormwater management are very site specific and "are related to habitat degradation, deposition and accumulation of toxic sediments, or the inability of the aquatic organisms to adjust to repeated exposures to high concentrations of toxic materials or high flow rates." (Pitt, Robert, Ph.D.,"Effects of Stormwater Runoff from Development,"River Voices, vol.14, no.3)

FOR MORE INFO

Stormwater Authority (www.stormwaterauthority.com)
U.S. EPA (http://cfpub.epa.gov/npdes/home.cfm?program_id=6)
Upper Chattahoochee Riverkeeper (www.getthedirtout.org)

Using the Clean Water Act

- **NPDES** — Many municipalities and industrial operations are required to obtain NPDES permits for stormwater pollution; construction sites of one acre or more must also have stormwater permits. Check with your state agency about the stormwater pollution permits in your watershed. (Chapter 2)
- **Antidegradation** — Before states can issue stormwater permits that will degrade water quality, an antidegradation analysis must be performed and subjected to public review. In this analysis, the state must examine whether all existing uses and all outstanding waters would be protected, and, to protect high quality waters, whether all alternatives are being considered with respect to their social and economic impact. (Chapter 1)
- **Water quality standards** — Identify the existing and designated uses downstream from municipal or industrial stormwater outfalls or construction sites. Which uses are most sensitive to stormwater pollution? To protect those uses, identify water quality criteria for sediment (total suspended solids), bacteria, heavy metals, petroleum byproducts (PAHs), pesticides, fertilizer, bioaccumulative toxic pollutants, habitat, streamflow and biology. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **303(d)** — Do the waters downstream of municipal or industrial stormwater outfalls or construction sites in your watershed support uses and meet water quality criteria? If not, or if they are threatened by stormwater pollution, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL** — Is there a TMDL scheduled or in progress in your watershed? Are poor stormwater management practices included as sources of the impairments? Have changes to the permits and the practices been included in the TMDL implementation plan? If not, encourage your agency to include them. (Chapter 3)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. In recent years, 319 money has been available to some municipalities to develop their stormwater program. Ask your state water quality agency how to apply for a 319 grant to reduce stormwater problems in your watershed, especially to address sources that aren't covered by a NPDES permit. (Chapter 6)
- **State Revolving Fund** — Historically, SRF loans have been directed almost exclusively to sewage collection and treatment projects. Encourage your local and state officials to direct these funds to "non structural" stormwater management. (Chapter 7)

Using other laws (Chapter 10)

- **SDWA** (p. 183) — Is the surface water or groundwater downstream of stormwater outfalls or construction sites used or designated for drinking? If so, it is likely that human health concerns will provide leverage to ensure these stormwater problems are addressed. Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the stormwater pollution risks to drinking water sources are included in the assessment and considered by your drinking water provider.
- **Local Land-Use Laws** — Check your state land-use laws and local ordinances. Look for zoning requirements in your watershed that may be encouraging development practices that harm water bodies and their uses by increasing the volume and toxicity of stormwater runoff (increased impervious surface, encouraging development of contaminated sites). Support growth planning that protects water resources.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against the damaging effects of stormwater pollution. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.
- **RCRA** (p. 185) — This law regulates hazardous and non-hazardous waste cleanup and disposal. Are there hazardous or non-hazardous landfills, abandoned facilities, or waste sources in your watershed? Check to make sure RCRA procedures are being followed and that stormwater management programs and plans take these sites into consideration.
- **CERCLA** (p. 186) — Are there Superfund sites in your watershed? If so, make sure that any stormwater management programs and plans (municipal, industrial or construction) are coordinated with the cleanup plans.

Combined and Sanitary Sewer Overflows (CSOs and SSOs)

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Rain and snowmelt discharged from combined stormwater and sewer systems can cause serious pollution in rivers and lakes in urban areas. These sewer systems were designed to capture and treat both domestic wastewater as well as stormwater runoff. But in many places development has increased beyond the capacity of combined sewer systems which causes them to periodically overflow, sending raw sewage into surface water bodies (combined sewer overflows). In areas where stormwater drains were never connected with the sanitary sewer system, raw sewage overflows can result from substantial amounts of water leaking into old pipes, pipe blockages, pipe breaks, power failures or insufficient capacity in the system. Such overflows are called sanitary sewer overflows.

Combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs) are leading causes of water quality impairment across the country. The EPA states that only 32 percent of communities with CSOs are implementing the minimum controls, despite a January 1997 deadline. Only 19 percent have completed their plans for controlling CSOs, and fewer than 10 percent have finished implementing CSO controls. The EPA estimates that 1,260 billion gallons of raw sewage from CSO discharges flow into our surface waters every year.

The overflows carry pollutants, including soil and grease, chemicals, nutrients, heavy metals, bacteria, viruses and oxygen-consuming substances. Some discharges into the system are illicit and may include used motor oil, antifreeze, pesticides, herbicides and fertilizers. Throughout the country, necessary (but costly) structural improvements and better management practices are being required by the EPA to eliminate the overflows.

Clean Water Network (www.cwn.org)
Natural Resources Defense Council (www.nrdc.org)

Using the Clean Water Act

- **NPDES** — NPDES permits are required for combined sewer systems and sanitary sewer systems that experience overflows. These permits usually lay out compliance schedules for reducing raw sewage discharge. Find out what your state is doing about combined sewer systems and leaking sanitary sewer systems that experience overflows. Ask questions about monitoring and compliance. Citizen monitoring can identify problems and direct agency attention. Stormwater NPDES requirements to improve management of stormwater volumes can contribute to the CSO/SSO solution. (Chapter 2)
- **Water quality standards** — Identify the existing and designated uses downstream of combined sewer overflows and sanitary sewer overflows. Which uses are the most sensitive to pollution from the overflows? To protect those uses, identify water quality criteria for bacteria, heavy metals, petroleum byproducts (PAHs), pesticides, fertilizer, bioaccumulative toxic pollutants, sediment (total suspended solids), habitat, streamflow and biology. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **303(d)** — Do the waters downstream of combined sewer overflows or sanitary sewer overflows in your watershed support uses and meet water quality criteria? If not, or if they are threatened by CSOs or SSOs, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL** — Is there a TMDL scheduled or in progress in your watershed? Are CSOs and SSOs included as sources of the impairments? Have changes to the permits, compliance schedules and proposed construction been included in the TMDL implementation plan? If not, encourage your agency to include them. (Chapter 3)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. In recent years, 319 money has been available to some municipalities to develop their stormwater program. Ask your state water quality agency about how to apply for a 319 grant to reduce stormwater problems in your watershed, especially those that contribute to CSOs or SSOs. (Chapter 6)

Using other laws (Chapter 10)

- **SDWA** (p. 183) — Is the surface water or groundwater downstream of CSOs or SSOs used or designated for drinking? If so, it is likely that drinking water concerns will provide leverage to ensure CSOs and SSOs are addressed expeditiously. Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the CSO and SSO risks to drinking water sources are included in the assessment and considered by your drinking water provider.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool to pressure for the elimination of CSOs and SSOs. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.

Destruction of Wetlands

© Time Palmer

Wetlands serve several important functions for ecosystems and human communities. They filter pollution, protect against shoreline erosion, offer aesthetic and recreational enjoyment, provide habitat and critical refuge for countless species and provide natural flood protection by absorbing and holding high waters.

In the 1600s, more than 220 million acres of wetlands existed in what is now the lower 48 states. By the 1980s, more than half of those wetland acres had been destroyed. Wetlands were drained and converted to other uses such as farming or development (industrial, commercial and residential). The years from the mid-1950s to the mid-1970's were a time of major wetland loss.

Recent estimates indicate continuing losses are between 58,000 to 60,000 acres annually.

In addition to these acreage losses, wetlands have suffered degradation from chemical contamination, excess nutrients, sediment and depositions from the air. Calculating the effects of degradation is difficult. The U.S. Fish and Wildlife Service estimated that up to 43% of threatened and endangered species depend directly or indirectly on wetlands for their survival.

Ongoing development poses one of the greatest threats to wetlands today. Protecting wetlands is a major challenge because, although they provide many public services, 74 percent of remaining wetlands are on private property.

FOR MORE INFO

National Wildlife Federation (www.nwf.org)
U.S. EPA (www.epa.gov/owow/wetlands)

Using the Clean Water Act

- **Section 404** — Section 404 requires permits for any discharges of dredged or fill material into "waters of the U.S." Filling a wetland prior to development requires a 404 permit. The permit process requires public input on the questions of need, alternatives and cumulative impacts. All projects are required to avoid any impact if possible, minimize impacts that are unavoidable, and mitigate for any necessary impact. If the permit is issued, the type of mitigation required is also subject to public comment. (Chapter 5)
- **Section 401** — Section 401 requires state water quality certification for federally permitted and licensed activities that may result in a discharge to water. If water quality standards (especially specific wetland criteria) may be violated by filling a wetland, raise those concerns during the public review of the state certification process. Make sure that the agency considers physical and biological criteria upstream and downstream of the project. (Chapter 4)
- **Water quality standards** — Identify the existing and designated uses associated with wetlands in your watershed. Which uses are the most sensitive to the impacts caused by dredging and filling? To protect those uses, identify water quality criteria applicable to wetlands such as temperature, sediment (total suspended solids), heavy metals, petroleum byproducts (PAHs), pesticides, fertilizer, habitat, streamflow and biological criteria. A few states have developed wetland-specific uses and criteria. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **Antidegradation** — Before a state can issue a water quality certification for a federal permit, an antidegradation analysis must be performed and be subjected to public review. In this analysis, the state must examine whether all existing uses and all outstanding waters would be protected, and, to protect high quality waters, whether all alternatives have been considered with respect to their social and economic impact. (Chapter 1)
- **303(d)** — Do the waters around or downstream of filled and altered wetlands in your watershed support uses and meet water quality criteria? If not, or if they are threatened by wetland destruction, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL** — Is there a TMDL scheduled or in progress in your watershed? Is the rapid destruction of wetlands included as a source of the impairments? Have changes to 404 permits been included in the TMDL implementation plan? If not, encourage your agency to include them. (Chapter 3)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. Ask your state water quality agency how to apply for a 319 grant to help control nonpoint source pollution through wetland protection. (Chapter 6)

Using other laws (Chapter 10)

- **SDWA** (p. 183) — Is the surface or groundwater downstream of wetland dredging or filling operations used or designated for drinking? If so, it is likely that drinking water concerns will provide leverage to address the impacts of those activities. Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the risks to drinking water sources associated with wetland destruction are included in the assessment and considered by your drinking water provider.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed. If so, you have another tool for protecting against wetland loss. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.
- **Local land use laws** — Is rapid development resulting in significant destruction of wetlands in your watershed? Try to use the land-use approval process and zoning requirements to protect habitat and water quality.

Loss of Natural Streamflows

© Oregon Water Trust

Bakoven Creek, Oregon

Cities, farms, rural residences, power producers and other industries withdraw water for their own uses. Fish need this same water to live. When rivers dry up, a host of species that depend on aquatic habitats suffer. Reduced streamflows can have numerous effects on wildlife including the removal of drinking water, reduced living space for all aquatic species, changes in riparian vegetation, changes in flooding patterns affecting wetland habitats that depend on flood waters, and degradation of water quality.

Water quality and water quantity are inextricably linked. Calculations in NPDES permits show how much point source pollution that a water body can handle, based on its flow at different times of year. The impact of pollution is often relative to the amount of water flowing. Minimum instream flow is the amount of water necessary to preserve river or stream values. In some states, many basins have been "over-appropriated" — meaning there is not enough water in the river to satisfy all the legal claims to it. Usually, that doesn't even include maintaining an adequate instream flow. In the West, several states have adopted programs that require landowners to leave water in streams for fish, wildlife, ecosystem protection, recreation, aesthetics, water quality, navigation, hydropower and other uses. In these cases, water is unavailable for consumptive uses if flows drop below a specified level.

Dams and withdrawals are not the only factors in changing natural flows, and low flows are not the only concern. Replacing natural vegetation with buildings, roads and lawns creates conditions that result in higher stormwater flows. These flows can destroy aquatic habitats by undercutting banks, removing woody debris from streams and burying stream bottoms with sediment. They can also carry pollutants from lawns, roads, farms and industrial areas into water bodies.

Although the Clean Water Act does not directly address flow and cannot supercede state water quantity decisions (CWA, section 101(g)), effective use of basic CWA tools requires information about streamflow levels over time, likely impacts of permitted activities on streamflow and coordination with water quantity decisions.

Trout Unlimited-Western Water Project (www.tu.org)
Oregon Water Watch (www.waterwatch.org)
Upper Chattahoochee Riverkeeper (www.chattahoochee.org/policy2.htm)
NH Dept. of Environmental Services (www.des.state.nh.us/rivers/instream/)

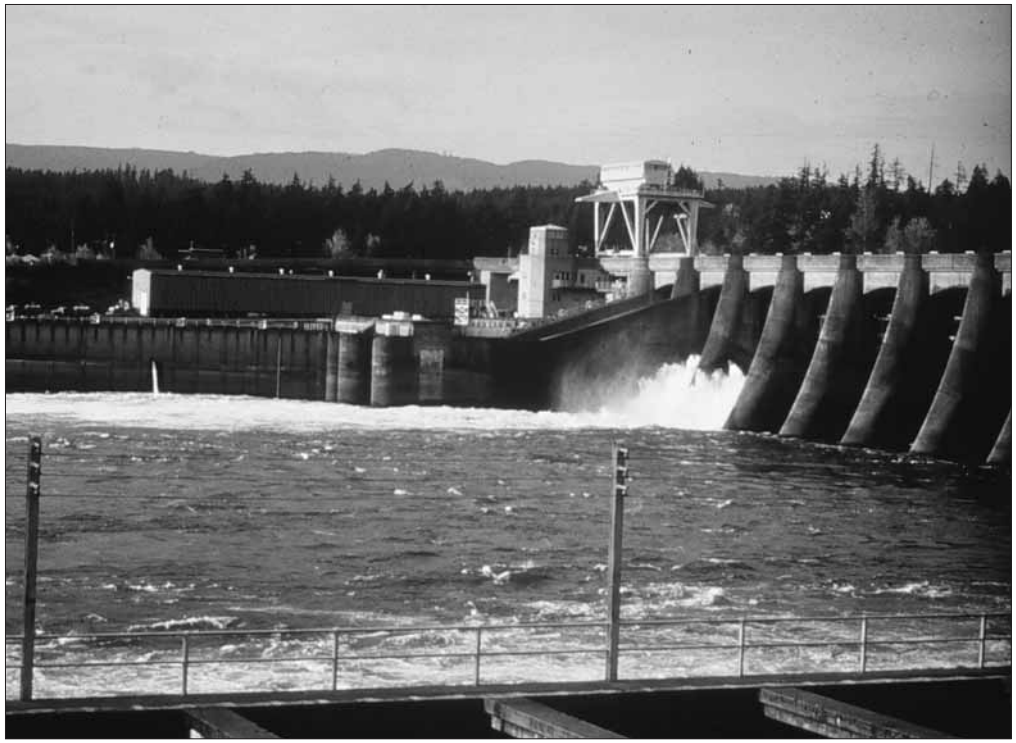
Using the Clean Water Act

- **Water quality standards** —Identify the existing and designated uses in your watershed. How many of them are dependent on natural streamflows? Which uses are likely to be the most sensitive to fluctuations in or the lack of streamflow? To protect those uses, identify water quality criteria for parameters that are most affected by flow such as bacteria, temperature, sediment (total suspended solids), habitat and biological criteria. Are seasonal flow fluctuations included in the criteria? Does your state have a water quality criterion for instream flow? Evaluate whether the criteria are adequate to protect existing and designated uses that depend on streamflow. (Chapter 1)
- **303(d)** — Make sure "flow-impaired" water bodies or those that are threatened by unnatural flows have been placed on the 303(d) list. If not, identify what other criteria are exceeded due to reduced flows (e.g., temperature, dissolved oxygen) or excessive flows (e.g., bacteria, sediment). Identify how existing or designated uses are impaired when flows are unnaturally high or low. (Chapter 3)
- **TMDL process** — Is there a TMDL scheduled or in progress in your watershed? Does it account for the current flow regime? Does the implementation plan address seasonal flow fluctuations as part of the recommended changes to permits and land management practices? Are flow impacts of withdrawals and dam operations considered? (Chapter 3)
- **NPDES** — NPDES permit discharge limits are based on predicted low flows, and sometimes include variances for high storm flows. Make sure the flow assumptions in the permits for your watershed are correct. (Chapter 2)
- **Antidegradation** — Antidegradation is supposed to apply to any activity that might affect water quality. When permits for new activities that will alter streamflow are issued, all existing uses and outstanding waters must first be protected. In order to maintain adequate flows for high quality waters, alternatives must be considered with respect to their social and economic impact. (Chapter 1)
- **Section 404** — Section 404 requires permits for any discharges of dredged or fill material into "waters of the U.S." Building a dam requires a 404 permit. This permit process requires public input on the questions of need, alternatives and cumulative impacts. All projects are required to avoid any impact if possible, minimize impacts that are unavoidable, and mitigate for any necessary impact. If the permit is issued, the type of mitigation required is also subject to public comment. (Chapter 5)
- **Section 401** — Section 401 requires state water quality certification for federally permitted and licensed activities that may result in a discharge to water. If water quality standards may be violated by building a dam or diverting water, raise those concerns during the public review of the state certification process. Make sure that the agency considers physical and biological criteria upstream and downstream of any dam or diversion. (Chapter 4)

Using other laws (Chapter 10)

- **SDWA** (p. 183) — Is any of your watershed used or designated for drinking? If so, it is likely that human health needs for adequate surface and ground water flows will provide leverage to address insufficient or bacteria-laden excessive streamflows. Are ground water drinking wells connected hydraulically to waterways experiencing low streamflows? Identify the risks to the drinking water supply and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the risks to drinking water sources related to inadequate or excessive flow are included in the assessment.
- **Wild & Scenic Rivers Act** (p. 187) — Is any part of your watershed designated as a Wild and Scenic River? If so, there are protections associated with that designation that could require more water be left in the stream for fish and wildlife and recreation. Find out if they apply.
- **Instream flow requirements** — Some states have set minimum instream flow requirements. Find out if your state is one of them.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against inadequate or excessive flows. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.
- **Local land-use laws** — Is rapid development resulting in excessive ground or surface water withdrawals from your watershed? Link the land-use approval process to the availability of water resources.
- **State drought response plans** — Some states in the West have developed drought response plans that lay out voluntary reductions in water use by farmers and municipalities. Find out whether your state has tried this approach.

Dam Building and Poor Dam Operation



River Network Collection

Virtually every river in the lower 48 states is regulated by dams, locks or diversions. The U.S. has more than 75,000 dams over five feet in height, and new dam projects continue to be proposed in watersheds across the country. The U.S. Bureau of Reclamation has been studying a proposed $1.8 billion project in Washington's Yakima Basin that would rival the massive Grand Coulee Dam. In California, new or expanded water storage projects are planned to divert more water for an ever-increasing population.

The river below a dam is not the same as the river above it. Downstream, flows can vary wildly, depending on whether the dam is operated for electricity generation, navigation, recreation, flood prevention or water supply. Seasonal fluctuations can be altered by dams, and new flow patterns can cause significant changes in channel shape and habitat. The river downstream can suffer from an increase in algae and nutrients and a decrease in dissolved oxygen. Decreased sediment loads can allow more light to pass through the water, further altering the biotic system.

Upstream from dams, reservoirs flood riverine habitat and displace some species. Over time, reservoirs fill with sediment and may cause new flooding problems. Temperatures in reservoirs can rise to levels that violate water quality criteria intended to protect aquatic species.

As a result of all of these changes, native aquatic species can suffer and die.

FOR MORE INFO

Hydropower Reform Coalition (www.hydroreform.org)
American Rivers (www.americanrivers.org)
River Alliance of Wisconsin (www.wisconsinrivers.org)

Using the Clean Water Act

- **Section 404** — Section 404 requires permits for any discharges of dredged or fill material into "waters of the U.S." Building a dam requires a 404 permit. This permit requires public input on the questions of need, alternatives and cumulative impacts. All projects are required to avoid any impact if possible, minimize impacts that are unavoidable, and mitigate for any necessary impact. If the permit is issued, the type of mitigation required is also subject to public comment. (Chapter 5)
- **Section 401** — Section 401 requires state water quality certification for federally permitted and licensed activities that may result in a discharge to water. If water quality standards may be violated by building a dam or changing dam operations, raise those concerns during the public review of the state certification process. Make sure that the agency considers physical and biological criteria upstream and downstream of any dam. (Chapter 4)
- **Water quality standards** — Identify the existing and designated uses upstream and downstream of a proposed or existing dam. Which uses are most sensitive to conditions created by the dam (slow moving, warmer and deeper water, or unnaturally fluctuating flows)? To protect those uses, identify water quality criteria for temperature, dissolved gases, sediment (total suspended solids), pollutants related to upstream land uses, habitat, streamflow and biology. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **303(d)** — Do the waters upstream or downstream from proposed or existing dam sites in your watershed support uses and meet water quality criteria? If not, or if they are threatened by dam building or operations, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL** — Is there a TMDL scheduled or in progress in your watershed? Are adverse impacts of existing or proposed dams included as sources of the impairments? Have changes to the operation of dams or plans for new dams been included in the TMDL implementation plan? If not, encourage your agency to evaluate and include them. (Chapter 3)

Using other laws (Chapter 10)

- **Wild & Scenic Rivers Act** (p. 187) — Is any part of your watershed designated as a Wild and Scenic River? If so, new dams on designated segments are prohibited. If a proposed dam upstream or downstream of a designated segment would diminish the protected resource values, it may be viewed more critically in the permitting process.
- **FPA/ECPA** (p. 189) — The Federal Power Act allows individuals, public interest groups and other interested parties to comment at various stages of the process of relicensing privately-owned hydropower dams. Many private dams are, or soon will be, up for relicensing, and ECPA requires consideration of non-power values such as the environment, recreation, fish and wildlife. Is the dam in your watershed up for relicensing soon? You can file a motion to intervene. Intervenors become formal parties to the process, and their comments are given more consideration than the general public.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against poorly sited and poorly operated dams. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.
- **SDWA** (p. 183) — Is the water upstream or downstream of a proposed or existing dam used or designated for drinking? Are there ground water drinking wells connected hydrologically to the waterway near the dam site? Will the quantity or quality of water coming from those wells be affected by the dam? Identify the potential contaminants in the river that could accumulate with sediments behind the dam and result in diminished drinking water quality. Identify risks to the drinking water uses and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the risks to drinking water sources associated with dam construction and operation are included in the assessment and considered by your drinking water provider.

Poor Agricultural Practices and Runoff

Paul Koberstein/*Cascadia Times*

Poor agricultural practices can result in significant impacts to lakes, streams and groundwater. Water flowing over agricultural land, whether from rain, irrigation or flooding, carries pollutants to the nearest water body. This water can also seep into the ground, leaching pollutants into ground water. Sometimes the ground acts as a filter, taking pollutants out of the water as it travels through. Eventually, though, many of the pollutants can reach a surface water body. Agricultural pollutants that are carried to the water via runoff can include sediment, pesticides, fertilizers, bacteria, oils, grease and solvents. The result can be that elevated levels of suspended solids (that carry pollutants or clog valuable gravel habitat), nitrogen and phosphorus, synthetic organic chemicals (often toxic and bioaccumulative) and heavy metals are found in the receiving waters.

Poor agricultural practices that can contribute to impairment of water bodies include removal of protective vegetative riparian buffers, excessive or detrimental pesticide and fertilizer application, lack of soil conservation, wetland destruction, excessive or wasteful irrigation and poor maintenance of farm equipment.

In 2001, the Ninth U.S. Court of Appeals ruled that the Clean Water Act requires a NPDES permit when an herbicide is applied directly to a drainage ditch (Headwaters, Inc. v. Talent Irrigation Dist., 243 F.3d 526 (9th Cir.-Or.2001)). In another case, the Ninth Circuit again required a NPDES permit for pesticide application, this time for U.S. Forest Service aerial spraying of trees and waterways (League of Wilderness Defenders v. Forsgren, 309 F.3d 1181 (9th Cir.-Or.2002)).

U.S. EPA (http://www.epa.gov/owow/nps/agriculture.html)
Prairie Rivers Network (http://www.prairierivers.org/Projects/Runoff/index.html)

Using the Clean Water Act

- **Water quality standards** — Identify the existing and designated uses downstream of agricultural land. Which uses are the most sensitive to polluted runoff from agricultural practices? To protect those uses, identify water quality criteria for temperature, bacteria, sediment (total suspended solids), nitrogen and phosphorus, dissolved oxygen, pesticides and fertilizers used in the basin, habitat, streamflow and biology. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **303(d) list** — Do the water bodies draining agricultural areas in your watershed support uses and meet water quality criteria? If not, or if they are threatened, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL process** — Is there a TMDL scheduled or in progress in your watershed? Are poor agricultural practices included as sources of the impairments? Are there reasonable assurances that agricultural practices will be improved to help meet water quality standards? If not, encourage your agency to establish them. (Chapter 3)
- **NPDES** — Due to recent court decisions, NPDES permits are required for pesticide application to irrigation ditches and aerial pesticide spraying. Find out whether your state has or is developing a pesticide NPDES permit. If it is, get involved in the permitting process. If not, find out how it plans to address the court decisions. (Chapter 2)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. Ask your state water quality agency about how to apply for a 319 grant to address agricultural runoff in your watershed. (Chapter 6)

Using other laws (Chapter 10)

- **CZMA/CZARA** (p. 187) — Amendments to the Coastal Zone Management Act require control of nonpoint source pollution in the "coastal zone," including agricultural runoff. If you are in a coastal state, find out whether your state applies the provisions of this law to agricultural practices in coastal watersheds. Many states are applying this law broadly beyond immediate coastal areas.
- **SDWA** (p. 183) — Is the surface water or groundwater downstream of agricultural lands used or designated for drinking? If so, it is likely that human health concerns will provide leverage to ensure that poor agricultural practices are addressed. The nitrogen, pathogens and sediment flowing from agricultural lands can cause serious problems to your drinking water. Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the agricultural risks to drinking water sources are included in the assessment and considered by your drinking water provider.
- **CREP/Farm Bill** (p. 188) — The Conservation Reserve Enhancement Program provides federal money to farmers willing to set aside farmland for conservation and protection. These resources can be instrumental in addressing agricultural runoff. Find out whether any money has been directed toward your watershed, and encourage use of the program, especially to implement TMDLs.
- **Local land use laws** — Are the agricultural activities occurring in an area that is zoned accordingly? Study local ordinances to learn what activities are and are not allowed.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against the damaging effects of poor agricultural practices and runoff. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.

Concentrated Animal Feeding Operations

Paul Koberstein/*Cascadia Times*

Concentrated animal feeding operations, or CAFOs, are agricultural facilities that keep large numbers of animals together for feeding, resulting in a large amount of manure in a relatively small space. Animal waste, if not managed properly, can run off farms and pollute nearby water bodies. Runoff from these facilities, rich in nutrients like nitrogen and phosphorus, can cause serious pollution problems. In 1999, when Hurricane Floyd hit North Carolina, at least five manure lagoons burst and 47 lagoons were completely flooded with river water mixed with waste from the lagoons. When the flood receded, polluted water had saturated the walls and floors of many homes and caused untold damage to aquatic life.

Runoff from CAFOs has been linked to problems with dangerous micro-organisms. The drinking water system for Milwaukee, Wisconsin was contaminated in 1993 by *cryptosporidium* (bacteria). This outbreak, most likely caused by dairy cattle waste, killed over 100 people and made more than 400,000 people ill. Another CAFO-related micro-organism, *Pfiesteria piscicida*, is widely believed to be responsible for fish kills in Maryland, North Carolina and Virginia and poses risks to human health.

In 2002, the EPA adopted a new rule requiring all CAFOs to apply for an NPDES permit, submit an annual report, and develop and follow a plan for handling manure and wastewater. CAFOs are defined in the rule as operations raising more than 1,000 cattle, 700 dairy cows, 2,500 swine, 10,000 sheep, 125,000 chickens, 82,000 laying hens or 55,000 turkeys in confinement. About 500 million tons of manure are generated annually by an estimated 238,000 of these livestock operations. From 1982 to 1997 these operations grew by 51 percent, with some of the largest facilities now exceeding 1 million animals. About 4,500 operations were required to obtain permits under the old regulation, but under the new rule, EPA expects that up to 11,000 additional facilities will be required to apply for permits by 2006.

FOR MORE INFO

Waterkeeper Alliance (www.waterkeeperalliance.org)
U.S. EPA (http://cfpub1.epa.gov/npdes/home.cfm?program_id=7)

Using the Clean Water Act

- **NPDES —** CAFOs are point sources of pollution and must obtain NPDES permits. There had been little enforcement of this requirement until rules were passed in 2002. Check with your state agency to determine whether feeding operations in your watershed need or already have permits. (Chapter 2)
- **Antidegradation** — Before a state can issue a NPDES permit for a CAFO that will degrade water quality, an antidegradation analysis must be performed and be subjected to public review. In this analysis, the state must examine whether all existing uses and all outstanding waters would be protected, and, to protect high quality waters, whether all alternatives have been considered with respect to their social and economic impact. (Chapter 1)
- **Water quality standards** — Identify the existing and designated uses downstream of CAFOs. Which uses are the most sensitive to polluted CAFO runoff? To protect those uses, identify water quality criteria for bacteria, pathogens, nitrogen, phosphorus, temperature, sediment (total suspended solids), habitat, streamflow and biology. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **303(d)** — Do the waters around and downstream of CAFOs in your watershed support uses and meet water quality criteria? If not, or if they are threatened by CAFO(s), make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL process** — Is there a TMDL scheduled or in progress in your watershed? Are poor CAFO management practices included as sources of the impairment? Have changes to CAFO permits and management practices been included in the TMDL implementation plan? If not, encourage your agency to include them. (Chapter 3)

Using other laws (Chapter 10)

- **SDWA** (p. 183) — Is the surface water or groundwater downstream of a CAFO used or designated for drinking? If so, it is likely that human health concerns will provide leverage to ensure that CAFO problems are addressed. The bacteria, nitrogen and micro-organisms flowing from CAFOs can cause serious problems to your drinking water. Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that CAFO risks to drinking water sources are included in the assessment and considered by your drinking water provider.
- **Local land-use laws —** Are the CAFOs located in areas that are zoned for agricultural activities? Study local ordinances to learn what activities are and are not allowed.
- **CREP/Farm Bill** (p. 188) — The Conservation Reserve Enhancement Program provides federal money to farmers willing to set aside farmland for conservation and protection. These resources can be instrumental in addressing agricultural runoff. Find out whether any money has been directed toward your watershed, and encourage use of the program, especially to implement TMDLs.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against the damaging effects of CAFOs. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.

Poor Mining Practices and Abandoned Mines

Barbara Ullian

HARD ROCK MINING

Active and abandoned hard rock mines contribute significantly to water quality problems in the United States. There are over 200,000 of these mines nationwide. At these sites, chemicals used in the mining process, such as cyanide, leach into the ground water. A more daunting problem is acid drainage caused when acid-bearing waste rocks, or tailings, are exposed to air and water. Such acid mine runoff is nearly impossible to stop. In some cases, reclamation may require water treatment in perpetuity.

Active hard rock mining continues to create more of the same problems for the future. According to the EPA, hard rock mining releases more toxins than any other U.S. industry. It also produces twice as much solid waste as all other U.S. industries and cities combined. These wastes poison our rivers, lakes and groundwater — an estimated 12,000 miles of rivers alone. More miles of river have been seriously contaminated by mining than are protected within the Wild and Scenic Rivers program. Currently, 67 mines are on the EPA's Superfund National Priority List (NPL). Of all NPL sites, mines are the largest and most costly to clean up.

COAL MINING

Acid drainage from abandoned coal mines is the chief water quality problem in the Appalachian States. Before 1977, federal law did not require the reclamation of mine lands. As a result, 1.1 million acres of abandoned coal mine lands have polluted more than 9,000 miles of streams with acid drainage. Abandoned coal mines continue to degrade the environment and pose health and safety risks, devastating some communities with illness and contamination of surface and ground water. The acid drainage from these abandoned mine lands is considered a "pre-existing discharge."

Active coal mining continues to threaten water quality, despite required discharge permits and federal reclamation law (RCRA, Chapter 10, p.185). Destructive methods of extracting coal today include strip mining, long wall underground mining and "mountaintop removal." Mountaintop removal requires dynamite to blast away 800-1,000 feet of a mountaintop which is then dumped into nearby valleys, burying streams.

FOR MORE INFO

Hard rock: Earthworks (www.mineralpolicy.org)
Coal: Appalachian Center for Environment and the Economy (www.appalachian-center.org)
Order River Network's Spring 2005 River Voices on mining and the Clean Water Act.

Using the Clean Water Act

- **NPDES** — Active and abandoned mines are required to have an NPDES permit, but implementation of this requirement varies significantly across the country. If you have a mine in your watershed, make sure it has a NPDES permit. (Chapter 2)
- **Water quality standards** — Identify the existing and designated uses downstream of mining operations. Which uses are the most sensitive to mining runoff? To protect those uses, identify water quality criteria for heavy metals, pH and any chemicals that were used or are still being used in mining operations, such as cyanide in gold leaching operations. Evaluate whether the criteria are stringent enough to existing and designated uses. (Chapter 1)
- **Antidegradation** — Before states can issue permits for mining operations that will degrade water quality, an antidegradation analysis must be performed and be subjected to public review. In this analysis, the state must examine whether all existing uses and all outstanding waters would be protected, and, to protect high quality waters, whether all alternatives have been considered with respect to their social and economic impact. (Chapter 1)
- **303(d)** — Do the water bodies downstream of mining areas in your watershed support uses and meet water quality criteria? If not, or if they are threatened by mining activity, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL process** — Is there a TMDL scheduled or in progress in your watershed? Are mining discharges included as sources of the impairment? Have changes to mining permits and practices been included in the TMDL implementation plan? If not, encourage your agency to include them. (Chapter 3)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. Ask your state water quality agency about how to apply for a 319 grant to address mining problems in your watershed. (Chapter 6)

Using other laws (Chapter 10)

- **SMCRA** (p. 189) — Does the coal mine in your watershed have a SMCRA permit? Does this permit provide for adequate reclamation of the land? Make sure new and existing permits meet water quality standards and that active mines comply with SMCRA's monitoring and inspection requirements. Funding may be available to clean up water bodies adversely affected by abandoned mines.
- **CERCLA** (p. 186) — Check to see whether the mine (operating or abandoned) in your watershed is a Superfund site or whether it qualifies as one. Specific actions for cleanup must be taken at Superfund sites; if the mine doesn't qualify for the Superfund list, but comes close, there still may be an opportunity to pressure for cleanup.
- **SDWA** (p. 183) — Is the surface water or groundwater downstream of active or abandoned mines used or designated for drinking? If so, it is likely that human health concerns will provide leverage to ensure that poor mining practices and abandoned mines are addressed. Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the risks to drinking water sources associated with active and abandoned mines are inclued in the assessment and considered by your drinking water provider.
- **RCRA** (p. 185) — This law regulates hazardous and non-hazardous waste cleanup and disposal. If a mine does not qualify for a Superfund cleanup, it will still be regulated under RCRA.
- **Wild & Scenic Rivers Act** (p. 187) — Is any part of your watershed designated as a Wild and Scenic River? If so, associated protections could require better operation of working mines or the cleanup of abandoned mines.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against the damaging effects of polluted runoff from mines. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.

Poor Forestry Practices

Barbara Ullian

Poor forestry practices can cause significant water quality problems. Clearcutting leads to erosion of soil into rivers. Roads and clearcuts can cause landslides that bury streams below. Cutting trees beside a stream can elevate water temperatures and destabilize banks. Pesticides applied to a stand of trees can leach to a nearby waterway through ground water or be carried with the soil by stormwater. These practices can harm aquatic life by limiting sources of food, shade and shelter. The problems are more acute in certain parts of the country. In Washington state, forestry activities are responsible for almost a third (32%) of impaired river miles. California, Florida, Louisiana, Mississippi, Montana and West Virginia also report that forestry activities degrade over 1,000 miles of streams in each state.

In 2000, the Roadless Area Rule set aside vast roadless areas for protection, but these and other areas have subsequently been reopened to more logging for the stated purpose of reducing fire hazards under the Bush Administration's "Healthy Forests Initiative."

FOR MORE INFO

American Lands Alliance (www.americanlands.org)
Pacific Rivers Council (www.pacrivers.org)

Using the Clean Water Act

- **Water quality standards** — Identify the existing and designated uses downstream of forest land. Which uses are the most sensitive to polluted runoff from forest practices? To protect those uses, identify water quality criteria for temperature, bacteria, sediment (total suspended solids), nitrogen and phosphorus, dissolved oxygen, pesticides and fertilizers used in the basin, habitat, streamflow and biology. Evaluate whether the criteria are stringent enough to protect existing and designated uses. (Chapter 1)
- **303(d) list** — Do the water bodies downstream of forest lands in your watershed support uses and meet water quality criteria? If not, or if they are threatened, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL process** — Is there a TMDL scheduled or in progress in your watershed? Are poor forestry practices included as sources of the impairments? Are there reasonable assurances that forestry practices will be improved to help meet water quality standards? If not, encourage your agency to establish them. (Chapter 3)
- **NPDES** — In 2002, the Ninth U.S. Circuit Court of Appeals ruled that a NPDES permit was needed for aerial spraying of pesticides over forest lands in Oregon and Washington. Inquire about the permitting process for aerial pesticide application in your state. If there isn't one, look for the opportunity to make a similar case to the Forest Service and your state agency. (Chapter 2)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. Ask your state water quality agency how to apply for a 319 grant to address forestry problems in your watershed. (Chapter 6)
- **Section 401** — This section of the Clean Water Act requires that the state agency review all federal permits or licenses for activities resulting in discharges to water. Section 401 has been applied to U.S. Forest Service permits for ski resorts. Many believe that it should also apply to timber sales. (Chapter 4)

Using other laws (Chapter 10)

- **SDWA** (p. 183) — Is the surface water or groundwater downstream of forest lands used or designated for drinking? If so, it is likely that human health concerns will provide leverage to ensure that poor forestry practices are addressed. Identify the risks and talk to the agency in charge of developing the Source Water Assessment for your watershed. Be sure that the forest practice risks to drinking water sources are included in the assessment and considered by your drinking water provider.
- **CZMA/CZARA** (p. 187) — Amendments to the Coastal Zone Management Act require control of non point source pollution in the "coastal zone," including forestry runoff. If you are in a coastal state, find out whether your state applies the provisions of this law to coastal forestry practices. Many states are applying this law broadly beyond immediate coastal areas.
- **National Forest Management Act** (p. 188) — National Forests and Grasslands are managed based on "Land and Resources Management Plans" prepared in compliance with the National Forest Management Act. These plans provide an opportunity to incorporate Clean Water Act requirements into forest management practices. In addition, citizens can appeal timber sales and other activities (such as road building) using Clean Water Act or Endangered Species Act provisions when those activities are likely to have adverse effects on a watershed.
- **ESA** (p. 186) — Are there threatened or endangered species in your watershed? If so, you have another tool for protecting against the damaging effects of poor forestry practices. The Endangered Species Act prohibits any activity that would result in harmful impacts to the species or its habitat.
- **Wild and Scenic Rivers Act** (p. 187) — Is any part of your watershed designated as a Wild and Scenic River? If so, timber harvests and forestry practices must be conducted so as to avoid adverse impacts on the river.

Loss of Species and Ecological Integrity

River Network Collection

As of June 2005, there were 746 species of plants and 518 species of animals listed under the Endangered Species Act. Another 21 species of animals are proposed for listing. But the listing of species does not prevent extinction or even paint a full picture of the problem. A report by the Center for Biological Diversity found that 79 percent of all species that have gone extinct since the Endangered Species Act became law in 1973 were never listed as endangered. Scientists have identified almost 4,000 species in the U.S. that are sufficiently threatened to qualify for the list, according to Defenders of Wildlife. A recent report by the Nature Conservancy revealed that approximately one-third of U.S. plant and animal species are at risk of extinction.

The Natural Heritage Central Database lists 526 species as extinct or missing, never to be seen again in the United States. Alabama, with its species-rich waterways, tops the list of extinction-prone states, with 98 species already gone. Next is California, with 48 species presumed or possibly extinct.

Poor water quality is often a factor in decisions to list endangered species. Pollution is known to cause the accumulation of toxic substances that affect reproduction and growth in shorebirds, waterfowl and fish. The Nature Conservancy reports that freshwater species are five times more endangered than terrestrial species. Healthy freshwater ecosystems provide valuable habitat and natural services — such as water purification, plant and animal foods, nutrient cycling, and biodiversity maintenance — that are critical for overall ecological integrity. Improper water management decisions threaten all these values.

FOR MORE INFO

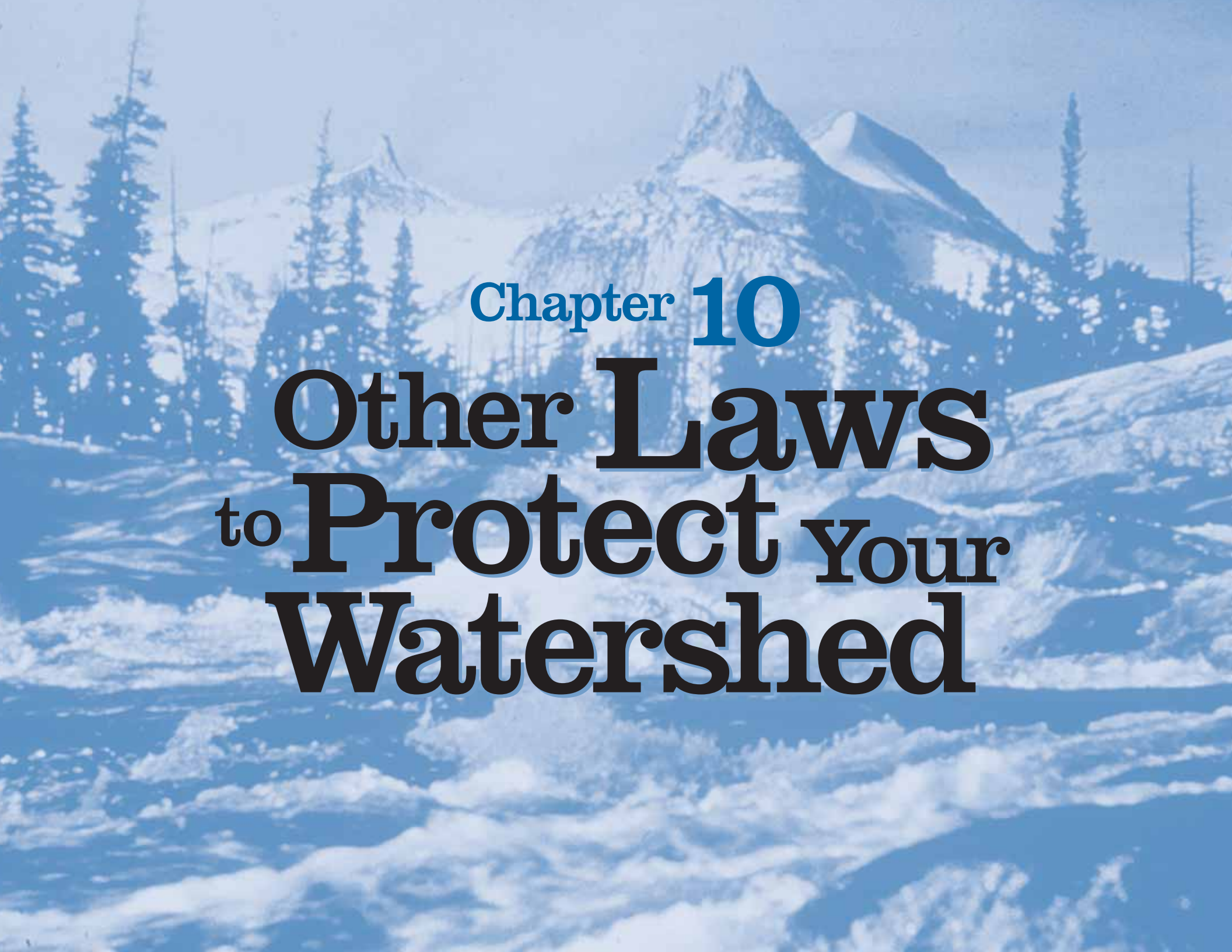
Center for Biological Diversity (www.biologicaldiversity.org/swcbd)
Defenders of Wildlife (www.defenders.org)
World Wildlife Fund (www.worldwildlife.org)

Using the Clean Water Act

- **Water Quality Standards** — Identify the threatened and endangered species in your watershed. Do the water quality standards properly designate uses that reflect the sensitivity of the threatened and endangered species? To protect the most sensitive species, identify water quality criteria for sediment (total suspended solids), temperature, heavy metals, petroleum byproducts (PAHs), bioaccumulative toxic pollutants, habitat, streamflow and biology. Are water quality criteria stringent enough to protect threatened and endangered species? (Chapter 1)
- **303(d)** — Do the streams in your watershed support threatened and endangered species and meet the water quality criteria? If not, or if they are threatened, make sure they are on the 303(d) list for the appropriate pollutants, problems and threats. (Chapter 3)
- **TMDL process** — Is there a TMDL scheduled or in progress in your watershed? Are the factors that have contributed to the species decline included as sources of the impairments? Have changes to permits and practices related to those factors been included in the TMDL implementation plan? If not, encourage your agency to include them. (Chapter 3)
- **NPDES** — NPDES permits and monitoring reports are the record of what is going into the water. To identify problems that affect threatened and endangered species, get a list of all discharges and compile a record of all the contaminants discharged into the water. This will help you to present the full picture to the agencies addressing the problems. (Chapter 2)
- **Antidegradation** — Before a state can issue any permits or allow any activity that will degrade water quality, an antidegradation analysis must be performed and subjected to public review. The antidegradation analysis can protect threatened and endangered species by enforcing the protection of existing uses. In addition, antidegradation review should lead to the protection and maintenance of high-quality and/or ecologically significant habitat. (Chapter 1)
- **Section 319** — This section of the Clean Water Act authorizes money to the states for projects that address nonpoint source pollution. Ask your state water quality agency how to apply for a 319 grant to protect habitat needed by threatened and endangered species in your watershed. (Chapter 6)

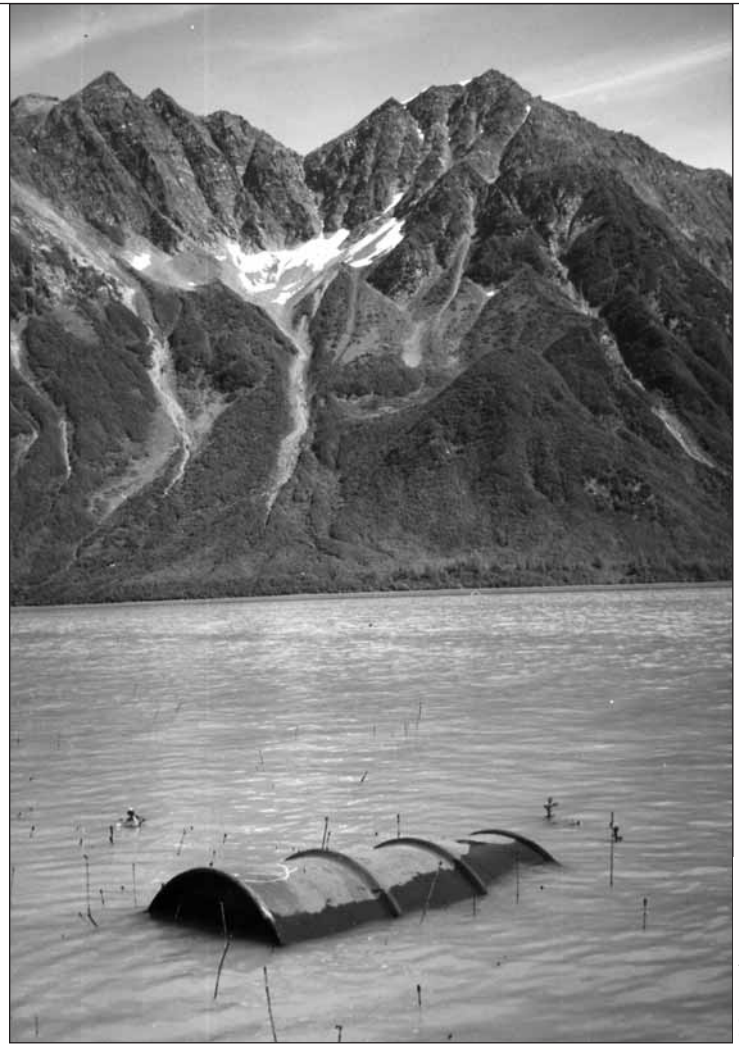
Using other laws (Chapter 10)

- **ESA** (p. 186) — Using the CWA and the Endangered Species Act (ESA) together can be extremely powerful. The ESA prohibits any activity that would result in harmful impacts to the species or its habitat.
- **Wild & Scenic Rivers Act** (p. 187) — Is any part of your watershed designated as a Wild and Scenic River? If so, use any protections associated with that designation that could require better land use practices and adequate streamflows to improve habitat quality for fish and wildlife.
- **Local land-use laws** — Local land use laws should conform to the protections granted all threatened and endangered species under the ESA. If land-use decisions are being made that will adversely affect any listed species, this should be brought to the attention of the federal management agency in charge (NOAA Fisheries or U.S. Fish and Wildlife Service).
- **CERCLA** (p. 186) — Are there Superfund sites in your watershed that may be affecting the health of the endangered species? If so, make sure the cleanup plans take the endangered species and the ESA process into consideration.
- **RCRA** (p. 185)— This law regulates hazardous and non-hazardous waste cleanup and disposal. Are there hazardous or non-hazardous landfills, abandoned facilities, or waste sources in your watershed? Check to make sure RCRA procedures are being followed and that risks to threatened and endangered populations are being recognized.



Chapter 10
Other Laws to Protect Your Watershed

River Network



© Pete Lavigne

Coper River, Alaska

Other Laws to Protect Your Watershed

The Clean Water Act is not the only tool that can be used to restore and protect water bodies. This chapter introduces and explains several other federal laws that citizens can use to help improve water quality and watershed health.

1. Safe Drinking Water Act of 1974

The Safe Drinking Water Act (SDWA) of 1974 was enacted in response to outbreaks of waterborne disease and increasing chemical contamination of public water sources. The SDWA authorizes the EPA to set maximum contaminant levels (MCLs) for dangerous chemicals, waterborne bacteria and viruses in the public's drinking water. In 1996, Congress strengthened the SDWA by requiring water suppliers to prepare Source Water Assessments which tell their consumers where their water comes from, what contaminants are in it, and whether the water poses a risk to health. These Source Water Assessments are supposed to identify risks to all water resources used (or to be used) as drinking water supplies. Every state developed a Source Water Assessment Plan that set priorities and laid out a process for completion of the assessments. The revised law also added several other new protections that protect drinking water all the way from the source to the tap. It required, for example, new standards to protect the public from potentially deadly microbes like cryptosporidium. In 2001, the EPA set a new arsenic standard of 10 parts per billion. This decision was at first suspended by the Bush Administration but was later reaffirmed. Continued efforts are needed to address many other threats to drinking water supplies such as groundwater contamination by the gasoline additive MTBE, pharmaceuticals in municipal wastewater and toxic contaminants in stormwater discharges. (http://www.epa.gov/safewater/sdwa)

Clean Water Act Connection: *A goal of the Clean Water Act is to ensure that our water is safe to drink. The Safe Drinking Water Act complements the Clean Water Act by requiring the assessment of the quality of and risks to public drinking water supplies. The SWDA also sets drinking water quality treatment standards that states, localities and water suppliers must meet. The EPA enforces this process. Also, the Source Water Assessment Plans can and should be used in the writing of permits (especially in determining mixing zones) and the development of TMDLs.*

2. National Environmental Policy Act of 1970

The National Environmental Policy Act of 1970 is the foundation of federal efforts to protect the environment. The Act requires all federal agencies to examine the need for, alternatives to and environmental consequences of all major proposed federal actions. NEPA requires federal agencies to disclose the environmental effects of their proposed actions and to include the public in their decision-making. The Act also established the President's Council on Environmental Quality (CEQ), which has primary responsibility for overseeing NEPA implementation. (http:/www.epa.gov/compliance/nepa)

Clean Water Act Connection: *When federal land managers make decisions on proposed logging, grazing and mining activities, they use NEPA to assess impacts on water quality. The U.S. Army Corps of Engineers uses NEPA as it weighs decisions on proposed dams, flood control and other water resource projects that impact water*

Basic principles of the National Environmental Policy Act

- Consideration of need.
- Consideration of alternatives.
- Consideration of impact.
- Public involvement.

Toxics Release Inventory

On an annual basis, the EPA and states are required to collect information regarding the releases and transfers of certain toxic chemicals from industrial facilities. This information is available to the public through the Toxics Release Inventory (TRI). Information is available on approximately 650 chemicals for many industries including manufacturing, metal and coal mining, electric utilities, and commercial hazardous waste treatment. You can search for releases by zip code.

The TRI is available online at: www.epa.gov/tri. If you do not have access to a computer, you can request a written report from EPA's TRI User Support Service at (202) 566-0250. They also have more information about the data, reporting requirements, reports and key contacts.

quality. NEPA needs to work in concert with parts of the Clean Water Act, such as water quality standards, NPDES permits, dredge and fill permits and water quality certification. Citizens can also use information gathered under NEPA in developing TMDLs for all relevant pollution sources in their watersheds. NEPA is also used with other laws, such as the Endangered Species Act.

3. Emergency Planning and Community Right-to-Know Act of 1986

Congress passed the Emergency Planning and Community Right-to-Know Act (EPCRA) to help communities deal safely and effectively with the many hazardous substances that are used in their neighborhoods, towns and watersheds. The Act outlines reporting requirements for the storage of hazardous chemicals and requires communities to develop emergency plans to respond to chemical accidents. The law created the Toxic Release Inventory (TRI), which is an online database that allows users to simply type in their zip code and get details about the release of certain toxic chemicals (sidebar at left). It is based on the notion that the public has a "right to know" what pollutants are added to the environment, especially in their own neighborhoods. The EPA calls the TRI "a powerful tool…for understanding the many factors that contribute to human health and environmental conditions." (http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/ EPCRA.htm)

Clean Water Act Connection: *Emergency plans developed to respond to chemical accidents and spills should include protection of water bodies. Reports on hazardous substances and storage facilities provide local governments and the public with information about possible chemical hazards in local watersheds. This information can be used to determine whether existing or designated uses are supported, criteria are met, permits are sufficiently protective (especially in mixing zones) and whether TMDLs include all relevant sources.*

4. Toxic Substances Control Act of 1976

Thousands of chemicals and their compounds are developed each year with unknown toxic or dangerous characteristics. The Toxic Substances Control Act (TSCA) requires the EPA to test, screen and regulate all chemicals produced or imported into the United States. (http://www.epa.gov/region5/defs/html/tsca.htm)

Clean Water Act Connection: *To prevent tragic consequences, TSCA requires that any chemical that reaches the consumer marketplace be tested for possible toxic effects to human health and the environment prior to commercial manufacture. Results from TSCA-required testing can and should be used in the development of numeric and narrative water quality criteria by the EPA and states. These criteria must protect existing and designated uses, including human health and aquatic life and habitat, from toxic contamination.*

5. Federal Insecticide, Fungicide and Rodenticide Act of 1947

Amended in 1972, 1988 and 1996, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) provides federal control over pesticide distribution, sale and use. All pesticides used in the U.S. must be registered (licensed) by the EPA. Registration assures that pesticides will be properly labeled and, if used in accordance with specifications, will not cause unreasonable harm to the environment. (http://www.epa.gov/region5/defs/html/fifra.htm)

Clean Water Act Connection: *FIFRA does not address the cumulative impacts of pesticides in our waterways. FIFRA documentation should be used in developing protective water quality criteria at the federal and state levels for all pesticides on the market. Recent court decisions require NPDES permits for pesticide application in waterways (Chapter 9, Poor Agricultural Practices, p. 170).*

6. Resource Conservation and Recovery Act of 1976

The Resource Conservation and Recovery act (RCRA) gave the EPA the authority to control hazardous waste from "cradle to grave." This includes the generation, transportation, treatment, storage and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous wastes. RCRA focuses only on active and future facilities and does not address abandoned or historical sites (http://www.epa.gov/region5/ defs/html/rcra.htm)

Clean Water Act Connection: *The 1986 amendments to RCRA enable the EPA to address water contamination that could result from leeking underground tanks storing petroleum and other hazardous substances. All RCRA cleanups must be performed so as to reduce the likelihood that hazardous and non-hazardous substances will ever leach into groundwater or run over the ground to contaminate larger surface water bodies. RCRA activity may jeopardize existing or designated uses, and therefore water quality standards should be considered in all decisions regarding the cleanup and management of contaminated sites. Discharge permits and TMDLs must take RCRA activity into account when evaluating cumulative impacts and watershed-wide sources of contamination. At former nuclear weapons sites, billions of dollars in cleanup funds are spent annually under RCRA to remove radioactive and hazardous contaminants that threaten water bodies at levels that violate Clean Water Act standards.*

7. Comprehensive Environmental Response, Compensation and Liability Act of 1980 (Superfund)

As designed, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) provided a federal "Superfund" to pay for the cleanup of uncontrolled or abandoned hazardous waste sites, as well as the cleanup of accidents, spills and other emergency releases of pollutants and contaminants into the environment. Through the Act, the EPA was given power to seek out all parties responsible for any release and assure their cooperation in the cleanup. The EPA cleans up orphan sites when responsible parties cannot be identified or located, or when they fail to act. The law created a tax on polluters to fund cleanup of abandoned sites, but Congress stopped collecting the tax in 1995, and the $1.6 billion collected through the years has almost been completely spent. As a result, the EPA has been limiting taxpayer-funded cleanup activities under CERCLA. The EPA can require private parties to clean up a site through orders, consent decrees or other settlements. Once a "response action" has been completed, the EPA recovers clean up costs from financially viable individuals and companies. (http://www.epa.gov/superfund/)

Clean Water Act Connection: *CERCLA requires the cleanup of toxic sites, which frequently are located in or next to waterways and which often have contaminated a ground or surface water source that may still be in use. Superfund sites may jeopardize existing or designated uses, and therefore water quality standards should be considered in the cleanup and management of sites. Discharge permits and TMDLs must take CERCLA activity into account when evaluating cumulative impacts and watershed-wide sources of contamination.*

8. Endangered Species Act of 1973

The Endangered Species Act (ESA) provides for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration (NOAA) Fisheries (formerly National Marine Fisheries Service) maintain a list of endangered and threatened species. The Act prohibits any action that results in the "taking" (harassing, harming or killing) of a listed species, or that adversely affects habitat (Section 9). It also requires federal agencies to consult with the relevant management agency before taking action or granting a permit that would jeopardize a species (Section 7). Protection or improvement of habitat on state or private lands may be addressed through the development and implementation of Habitat Conservation Plans (Section 10). (http://endangered.fws.gov and http://www.nmfs.noaa.gov/pr)

Clean Water Act Connection: *ESA Sections 7, 9 and 10 are tools that can be used to protect the aquatic habitats of threatened and endangered species on both public and private lands. Lawsuits have relied on the ESA to stop, change or curtail some activities including timber sales, grazing and hydroelectric operations. In the Northwest,*

the ESA has been used as a tool to improve habitat for several listed salmon species. Water quality criteria must be designed to protect the most sensitive uses which often include threatened or endangered species. The antidegradation policy requires protection of existing uses such as threatened and endangered species, and it can lead to designation of outstanding waters to protect the ecological significance of critical habitat. Federal lawmakers have proposed combining the ESA's Habitat Conservation Plan process with TMDLs. While they should be coordinated, they each have specific requirements that could be lost in the streamlining.

9. Coastal Zone Management Act of 1972

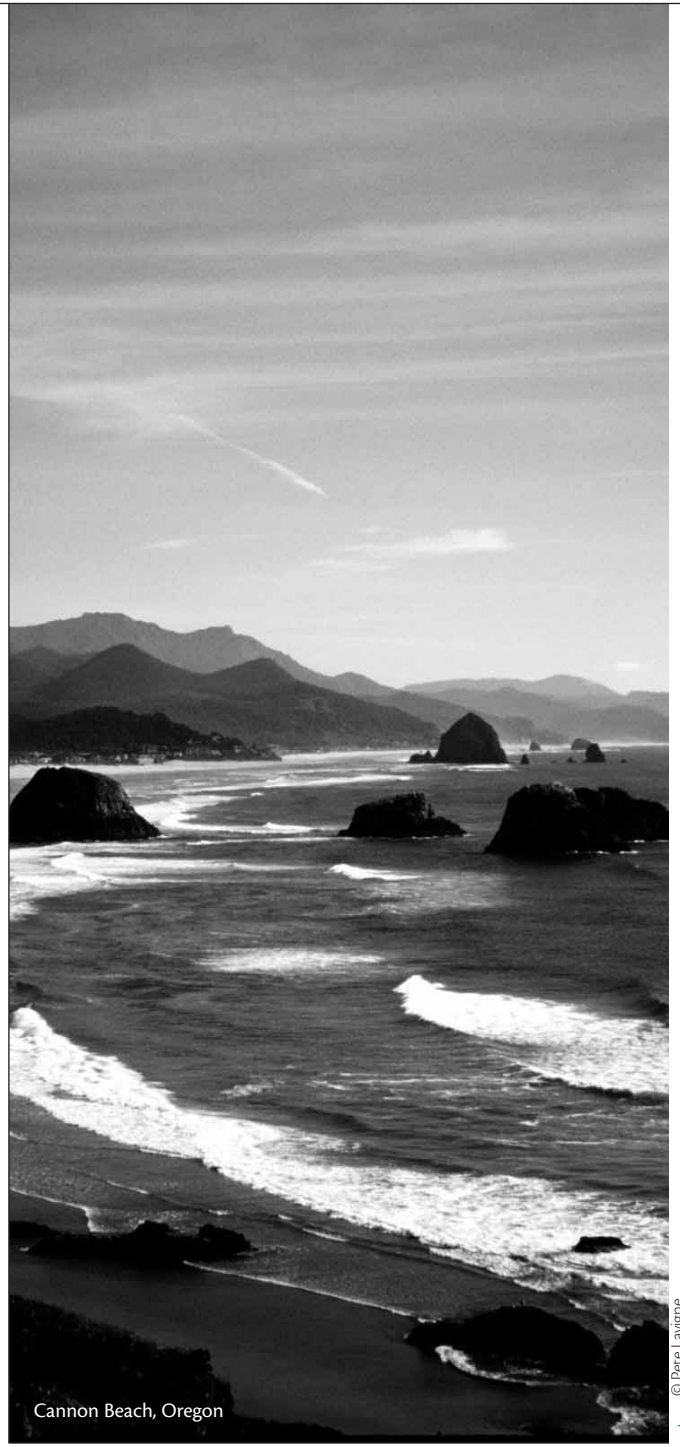
The Coastal Zone Management Act (CZMA) requires the National Oceanic and Atmospheric Administration (NOAA) to preserve, protect, develop and where possible, restore and enhance the resources of coastal zones. This mandate is to be accomplished in cooperation with the 29 states and five territories that have coastal management programs. The Act assists the states in achieving responsible use of land and water resources in the coastal zone by giving full consideration to ecological and aesthetic values, cultural history and economics. (http://coastalmanagement.noaa.gov/)

Clean Water Act Connection: *In 1990, through amendments to CZMA, Congress created the Coastal Zone Management Program, requiring states to develop and implement programs to reduce polluted runoff and more effectively manage nonpoint source pollution. The CZMA provides a hook for regulating nonpoint sources of pollution in coastal states. This tool can come into play when developing and implementing TMDLs that address problems in estuarine species and habitat.*

10. National Wild and Scenic Rivers Act of 1968

In the 1960s, the country awoke to the fact that our rivers were being dammed, dredged, diked, diverted and degraded at an alarming rate. The Wild and Scenic Rivers Act serves to protect designated free-flowing rivers that have "outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural and other similar values." The Act says these rivers "shall be preserved in the free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." By 1998, 175 rivers had been designated, covering 10,955 river miles (out of 3.5 million U.S. river miles). The most recent designation was 30 miles of the Westfield River in Massachusetts in 2004. (http://www.nps.gov/rivers)

Clean Water Act Connection: *This law states that by maintaining rivers in a free-flowing condition, it can "protect the water quality of such rivers and… fulfill other vital national conservation purposes." For example, at the time Oregon's Klamath River was protected under the Wild and Scenic Rivers Act, a 15-year battle over the proposed Salt Caves Hydro Project came to an end. The dam would have increased water temperatures in a river system that was already seriously stressed by other uses. A Wild and Scenic designation becomes an existing use of a river that*



Cannon Beach, Oregon

needs to be protected in water quality standards by a designated use such as "aesthetics" or "recreation." The use can be protected against harm through the most basic antidegradation protection of existing uses as well as through designation as an Outstanding National Resource Water (ONRW).

11. Farm Security and Rural Investment Act of 2002 (Farm Bill)

The 2002 Farm Bill increased spending for agricultural conservation programs by $9 billion, including incentives to help farms address environmental problems associated with farming. It increased funding for the Environmental Quality Incentives Program (EQIP) to provide more than $1 billion per year for farmland and floodplain protection, grazing lands conservation, and wildlife habitat protection. The 2002 Farm Bill also continued the Conservation Reserve Enhancement Program (CREP) launched in the 1996 farm bill, which targets areas for restoration. (http://www.usda.gov/farmbill/)

Clean Water Act Connection: *Washington and Oregon are using CREP funds to restore habitat for salmon species listed under the ESA. The Washington CREP is restoring freshwater riparian habitat along 3,000 miles of salmon streams, including all streams that provide spawning habitat for listed species. The Farm Bill also gives billions of dollars to farming operations to encouragethe use of fertilizers and pesticides that ultimately degrade water quality. By providing funds to improve management practices on agricultural lands, the Farm Bill can help to implement agricultural nonpoint source pollution reductions in TMDLs.*

12. National Forest Management Act of 1976

The National Forest Management Act (NFMA) is a cornerstone of environmental law intended to protect biodiversity in National Forests and to ensure public involvement in forest planning and management. It provides for logging while recognizing "the fundamental need to protect, and where appropriate, improve the quality of soil, water and air resources." (http://www.fs.fed.us/emc/nfma/)

Clean Water Act Connection: *NFMA is supposed to ensure that timber will be harvested from National Forests "only where…soil, slope or other watershed conditions will not be irreversibly damaged." It also specifies that "protection is provided for streams, stream-banks, shorelines, lakes, wetlands, and other bodies of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat…" The roadless area conservation rules adopted by the Clinton Administration were intended to protect millions of acres of roadless habitat for species of concern identified through NFMA regulations. The Bush Administration has compromised these rules through the "Healthy Forests Initiative." To integrate the CWA with NFMA, citizens can insist that water quality standards, antidegradation and*

TMDLs be included as part of Forest Management Plans, where appropriate. Citizens should comment on timber sales with these CWA tools in mind and engage in the 401 certification process where federal licenses and permits are issued for forest activities."

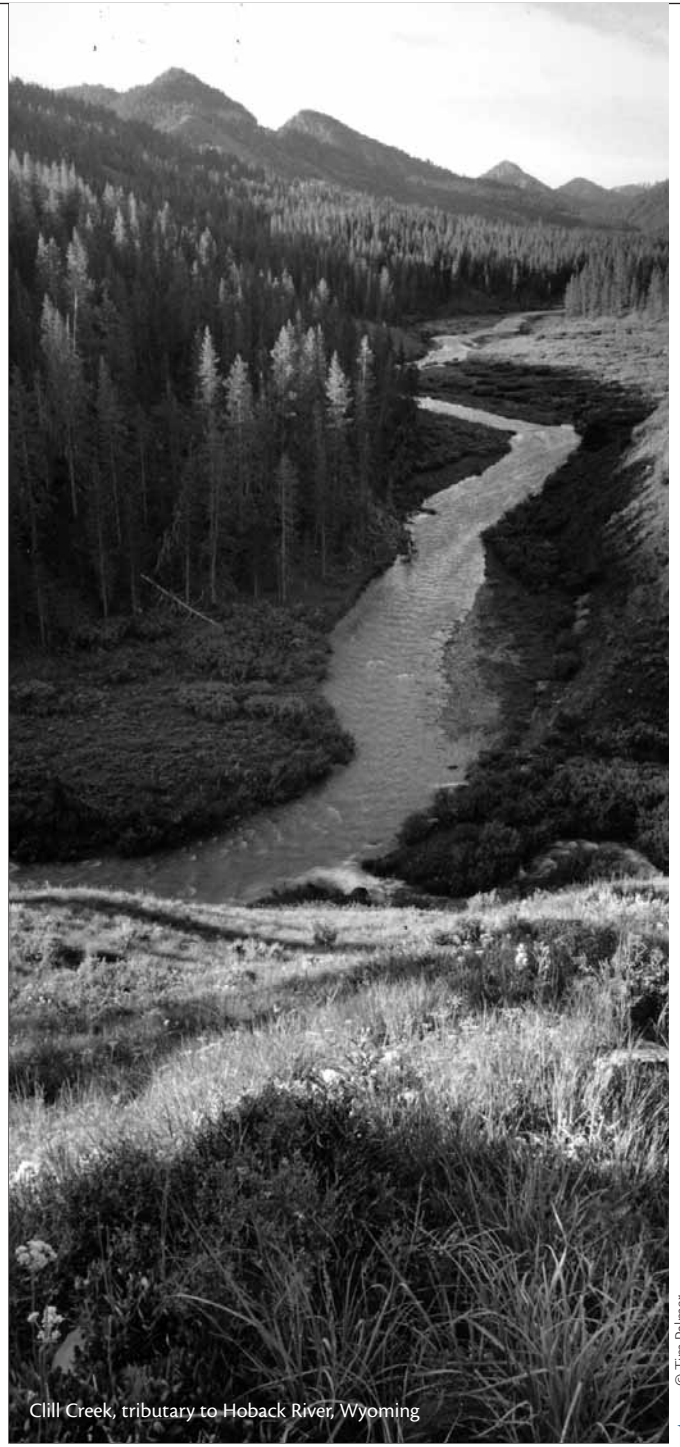
13. Surface Mining Control and Reclamation Act of 1977

The Surface Mining Control and Reclamation Act (SMCRA) was passed in order "to protect society and the environment from the adverse effects of surface coal mining operations," among other things. The Act establishes minimum requirements for surface coal mining activities and the reclamation of coal-mined lands. Coal mining activities on state and federal lands is prohibited without a permit, and a reclamation plan must be part of the permit application process. Disturbances to and adverse impacts on fish, wildlife and other environmental values are to be minimized by mine operators. In reclamation planning, land and water resource restoration is a priority. The Act also creates an Abandoned Mine Reclamation Fund. Money from the fund is used to reclaim and restore land and water resources which have been adversely affected by coal mining. The Act outlines monitoring and inspection provisions as well. (http://www.osmre.gov/)

Clean Water Act Connection: *Active mines are required to obtain a mining permit under SMCRA as well as a NPDES permit for their activities. SMCRA is very important to the protection of water quality, particularly for acid producing coal mines. There are many aspects of SMCRA that regulate mining impacts on the "hydrological balance." It is important that reclamation plans address water quality standards and adequately reclaim the land. SMCRA prohibits mining in specified federal areas, including those which are part of the Wild and Scenic Rivers System. To better address toxins from mining, citizens can insist that permit requirements prevent water pollution and that a 404 cumulative impacts analysis be completed.*

14. Electric Consumers Protection Act (ECPA) of 1986

Thousands of hydropower dams that are operated by private developers, stockholder-owned utilities or state or local governments are regulated by the Federal Energy Regulatory Commission (FERC). This federal agency issues 30- to 50-year licenses that specify how dams are to be operated, what minimum levels of water must be allowed to flow through the dams, what forms of fish passage must be installed and, in some cases, how watershed lands are managed. The licenses for hundreds of dams are up for renewal through 2010. The EPCA of 1986 (an amendment to the Federal Power Act of 1920) requires the Commission to give "equal consideration" to both non-power values (such as the environment, recreation, fish and wildlife) and power objectives (development, efficiency, etc.) in making a licensing decision. The law also requires FERC to base mitigation for adverse effects on the recommendations of federal and state fish and wildlife agencies and to negotiate with the agencies if disagreements occur.



Clill Creek, tributary to Hoback River, Wyoming

© Tim Palmer

Clean Water Act Connection: *Idaho Rivers United reports that the process of relicensing hydropower dams has "spawned creative ideas for river improvements, as well as negotiations among hydropower companies, natural resource agencies, non-governmental organizations and individuals to implement these rehabilitation measures. Remarkable river enhancement has resulted." Protection of existing and designated uses needs to be part of the relicensing process. Additionally, to the extent that hydropower facilities are contributing to threats or impairment, relicensing processes should be coordinated with the development and implementation of TMDLs.*

15. The Marine Protection, Research and Sanctuaries Act of 1972

The Marine Protection, Research and Sanctuaries Act (MPRSA), also known as the Ocean Dumping Act, prohibits all ocean dumping without a permit in any ocean waters under U.S. jurisdiction by any U.S. ship or by any ship sailing from a U.S. port. The ban includes the dumping of radiological, chemical and biological warfare agents, high-level radioactive waste, medical waste and sewage sludge. Permits for dumping of materials other than dredge spoils can be issued by the EPA if the agency determines (through a full public notice and process) that the discharge will not unreasonably degrade or endanger human health or welfare or the marine environment. The law also has provisions related to creating marine sanctuaries, conducting ocean disposal research and monitoring coastal water quality. (http://www.epa.gov/owow/ocpd/marine.html)

Clean Water Act Connection: *The MPRSA has been strengthened in recent years, particularly to address sewage sludge dumping, which is not covered by the Clean Water Act. Water quality standards are set by states and are not enforceable outside of state waters (3 miles from shore). Therefore, the Ocean Dumping Act adds significant protections for waters outside state jurisdiction by prohibiting the dumping of any materials in any U.S. water without a permit.*

16. Title VI of the Civil Rights Act of 1964

Title VI of the Civil Rights Act of 1964 requires federal agencies to ensure that no programs or activities receiving federal financial assistance discriminate on the basis of race, color or national origin. Courts have ruled that Title VI guarantees the fair treatment and meaningful involvement of all people with respect to the development, implementation and enforcement of environmental laws, regulations and policies. This guarantee has come to be known as "environmental justice." The Supreme Court has ruled that Title VI authorizes federal agencies, including the EPA, to adopt implementing regulations that prohibit discriminatory effects. (http://www.epa.gov/civilrights)

Clean Water Act Connection: *Since the early 1990s, the EPA has received increasing numbers of complaints that state pollution control permits violate Title VI by dumping a disproportionate amount of contamination in communities of color or low income communities. Policies or practices that seem neutral (such as NPDES permits), but that result in discriminatory effects, violate Title VI regulations unless it is shown that the policies or practices are justified and that there is no less discriminatory alternative.*

17. Public Trust Doctrine

The Public Trust Doctrine is a common law doctrine. The legal right of the public to use certain lands and waters is the essence of the Doctrine. The right may be concurrent with private ownership. The legal interest of the public is not absolute; it is determined by a balancing of interests. Under the Public Trust Doctrine, polluters are liable to the public for compensation for lost use or reduced functions (Natural Resource Damages, NRD) of tidal lands, waterways, groundwater, wetlands, wildlife and fisheries that rightly belong to the people. NRD law requires that the government act as a public trustee, making polluters pay for resource restoration or replacement.

Clean Water Act Connection: *We have lost touch with the fundamental premise that the health and use of the nation's waters must be protected for the public. Citizens can use the Public Trust Doctrine to challenge state decisions and actions that are harmful to rivers. In doing so, they can often force state agencies to consider the natural resources held in the public trust more carefully.*

Under the Public Trust Doctrine, polluters are liable to the public for compensation for lost use or reduced functions (Natural Resource Damages, NRD) of tidal lands, waterways, groundwater, wetlands, wildlife and fisheries that rightly belong to the people.

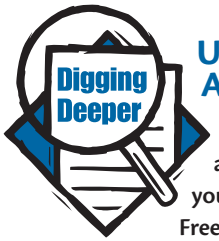
MAJOR FEDERAL ENVIRONMENTAL LAWS

These laws have taken effect since 1970

YEAR	TITLE	ACRONYM
1970	National Environmental Policy Act	NEPA
	Clean Air Act Amendments	CAA
	Water Quality Improvement Act	WQIA
1972	Federal Water Pollution Control Act (Clean Water Act)	CWA
	Marine Protection, Research and Sanctuaries Act	MPRSA
	Coastal Zone Management Act	CZMA
	Federal Environmental Pesticide Control Act	FEPCA
	Noise Control Act	NCA
1973	Endangered Species Act	ESA
1974	Safe Drinking Water Act	SDWA
1976	Federal Land Policy and Management Act	FLPMA
	National Forest Management Act	NFMA
	Resource Conservation and Recovery Act	RCRA
	Toxic Substances Control Act	TSCA
1977	Clean Air Act Amendments	CAA
	Clean Water Act Amendments	CWA
	Surface Mining Control and Reclamation Act	SMCRA
1980	Comprehensive Environmental Response, Compensation and Liability Act ("Superfund")	CERCLA
	Alaska National Interest Lands Conservation Act	ANILCA
1982	Nuclear Waste Policy Act	NWPA
1984	Hazardous and Solid Waste Amendments	HSWA
1986	Safe Drinking Water Act Amendments	SDWA
	Superfund Amendments and Reauthorization Act	SARA
	Emergency Planning and Community Right-to-Know Act	EPCRA
	Federal Power Act (Electric Consumer's Protection Act)	FPA
1987	Water Quality Act (CWA Amendments)	WQA
	Nuclear Waste Policy Amendments	NWPA
1988	Endangered Species Act Reauthorization	ESA
	Federal Insecticide, Fungicide and Rodenticide Act Amendments	FIFRAA
1989	North American Wetlands Conservation Act	NAWCA
1990	Oil Pollution Act	OPA
	National Environmental Education Act	NEEA
	Clean Air Act Amendments	CAA
1992	Pipeline Safety Act	PSA
1996	Safe Drinking Water Act Amendments	SDWA

Chapter 11

Collecting Information about Your Watershed



Using the Freedom of Information Act (FOIA)

If you plan to submit a FOIA request to a federal agency, a complete, well-written request may help you avoid delays. The Reporters Committee for Freedom of the Press designed a simple online form that can be used by anyone to create an effective FOIA letter. It asks you all the pertinent information, guides you through the options available, and it even lists a number of federal agencies and their addresses, including the EPA. (http://www.rcfp.org/foi_letter/generate.php)

State and local agencies usually have their own process and requirements for data requests.

Sandbow River, Alaska

Collecting Information about Your Watershed

What do you know about the water bodies in your community? If you are concerned about water pollution, what do you *need* to know to protect your family's health and the health of the waters you care about? Congress understood that unless citizens get involved and stay involved, we will never clean up the nation's waters. Because of this, significant public information requirements were built into the Clean Water Act and other environmental protection laws. These requirements, combined with the ongoing efforts of many state and federal agencies, have produced considerable amounts of information about every watershed in the nation.

This information is public. You have a right to see it and a right to obtain copies of it. Most of this information is available from your state water quality agency or the EPA. If you request a large

number of documents from the EPA, you may need to follow the process set out by the Federal Freedom of Information Act (sidebar at left).

This chapter will help you find key sources of existing information about your watershed, decide how to fill critical information gaps, and locate resources that can help you interpret and use the data you gather. Don't worry about gathering information from every source. Just look for what you need to protect the waters you care about. If you're unsure of where to begin, start by reviewing the regularly updated information required by the Clean Water Act. As your command of the Clean Water Act grows, so too will your capacity to effectively use it.

Information Required by the Clean Water Act

The Clean Water Act directs public agencies and pollutant discharge permit holders to provide significant amounts of information about water bodies. This can range from comprehensive and often bulky national reports to monitoring data from single dischargers. The following are a few of the most important types of information available through state water quality agencies and the EPA. The sections of the Act that require reports, plans or programs are listed in parentheses; the reports themselves are often referred to by these section numbers.

River Network maintains an online database with Clean Water Act program contacts and information from each state (**http://www.rivernetwork.org/cleanwater/cwa_search.asp**).

The National Water Quality Inventory: Report to Congress (Section 305(b))

Section 305(b) requires the EPA to report to Congress on the overall health of surface waters every two years. The EPA compiles the national assessment of progress toward clean water goals into an interactive online database. This database is a rich source of current information for concerned citizens. The information is state-specific, and it provides information on how each waterbody measures against its water quality standards. Where water quality falls short in any respect, the state lists known problems and known or suspected causes (Chapter 3). In 2002, the EPA began encouraging states to combine their 305(b) reports with their 303(d) lists into **Integrated Reports** (see 303(d) web address below).

Every watershed group should have a copy of its state's most recent 305(b) report on the shelf and should be on the state's mailing list for future versions. Groups should also consider publishing summaries of the state report pertaining to their watersheds in a concise, easy-to-read document that interprets the information for members, supporters and the media. The interactive database and more information can be found at **http://www.epa.gov/305b/.**

List of Threatened and Impaired Waters (Section 303(d))

The Clean Water Act requires states to list threatened and impaired waters — those not expected to meet their water quality goals even after all current regulatory requirements are met. Your state's water quality agency can provide this list of impaired waters and a timetable for developing watershed action plans for these waters. In 2002, the EPA began encouraging states to combine their 305(b) reports with their 303(d) lists into **Integrated Reports**. For more information and your state's list, visit **http://www.epa.gov/owow/tmdl/.**

Total Maximum Daily Loads (TMDLs)

For waters on the 303(d) list, each state must develop and implement watershed-based protection or restoration plans (TMDLs, Chapter 3). If a TMDL has been developed (or is being developed) for your watershed, it can be a valuable source of information for your work. Get copies of any TMDLs for the waters you care about, and ask for background studies and calculations that might be helpful. Visit the River Network database for your state TMDL contact (**http://www.rivernetwork.org/cleanwater/cwa_search.asp**) or go to the EPA TMDL site (**http://www.epa.gov/owow/tmdl/index.html**) and search for data in your state and your watershed.

Lists of permitted discharges, NPDES permits and discharge monitoring reports (Section 402)

The Clean Water Act calls for a system of permits to regulate point source pollution discharges (NPDES, Chapter 2). Each discharger must obtain a permit that establishes legal limits for the types and amounts of pollutants that may be released to public waters at specific points. Permit holders must monitor the quality of their discharges and report when they have not met permitted limits. They must submit regular (usually monthly) Discharge Monitoring Reports (DMRs) to the state.

Every watershed group should obtain a list of all the permitted discharges in its area. Most will also want to obtain copies of some of the actual permits — or at least "permit fact sheets" that summarize the most important information about the permit. It can also be informative to obtain and review DMRs for certain watersheds or specific dischargers.

You should periodically review summaries of permit violations for your watershed. If one or more dischargers are frequent permit violators, you should ask the state for a summary of past and current enforcement actions for those dischargers.

Lists of the permitted discharges in your watershed and the recent DMRs for each discharger should be available from your state environmental agency. Visit River Network's database for contact information (**http://www.rivernetwork.org/cleanwater/cwa_search.asp**). Permit information is also available through the EPA at **http://cfpub.epa.gov/npdes/permitissuance/permitscanning.cfm.**

Basin-wide water quality plans (Section 208)

Section 208 of the Clean Water Act required the development of basin-wide "waste treatment" or water quality plans. While most of these detailed plans were developed in the early to mid 1970's, some have been updated and serve as the basis for planning and action for state water quality agencies. Regardless of when it was compiled, the 208 water quality plan for your watershed contains pertinent information that you will want to have. At a minimum, the plan will allow you to compare past projections with current realities. Every watershed group should obtain a copy of the 208 plan for its watershed from the state water quality agency or the EPA.

Reports on nonpoint source projects (Section 319)

Section 319 requires state assessments of nonpoint source pollution problems, requires management plans and programs to address the problems and provides grant money for projects to reduce pollution from nonpoint sources. State nonpoint source managment plans and reports on funded 319 projects contain information about water quality problems in your area and past, present or planned corrective actions (Chapter 6). For more information, visit **http://www.epa.gov/owow/nps/cwact.html.**

Annual reports and "Intended Use Plans" for State Revolving Funds (Title VI)

Since 1987, the EPA has made grants to all states to establish "State Revolving Loan Funds" (SRF) for water pollution control projects (Chapter 7). Hundreds of millions of dollars are available, and states must develop annual "Intended Use Plans" that describe how they expect to use this money. States must also produce annual reports that indicate how the money has been spent. These plans and reports outline a state's past, current and future priorities for the use of these water pollution control funds. For more SRF information, visit **http://www.epa.gov/owm/cwfinance/cwsrf/index.htm.** The Intended Uses Plans should be available to the public from your state agency. SRF state contact information is available on River Network's database **(http://www.rivernetwork.org/cleanwater/cwa_search.asp).**

National Estuary Program (Section 320) and related programs reports

As of 2005, 28 estuaries had been accepted into the National Estuary Program (NEP). The estuary programs are sources of vast amounts of data on many of the nation's most populated and threatened watersheds. Each estuary program has either completed a significant evaluation of estuary problems

Watershed Planning: Section 208

The idea of watershed planning gained widespread support in the 1990s, but was hardly new. In 1972, Section 208 of the Clean Water Act called for the development of basin-wide waste treatment management plans. EPA relied on information in these plans when it decided where to award grants for construction of new or improved sewage treatment facilities. Most 208 plans were detailed assessments of watershed resources, conditions and trends. Many have been amended and updated in the years since and used by some states as the basis not only for sewage treatment planning but for general water quality and quantity management.

Basin Programs

Chesapeake Bay Program:
http://www.chesapeakebay.net/index.cfm

Great Lakes Program:
http://www.epa.gov/glnpo

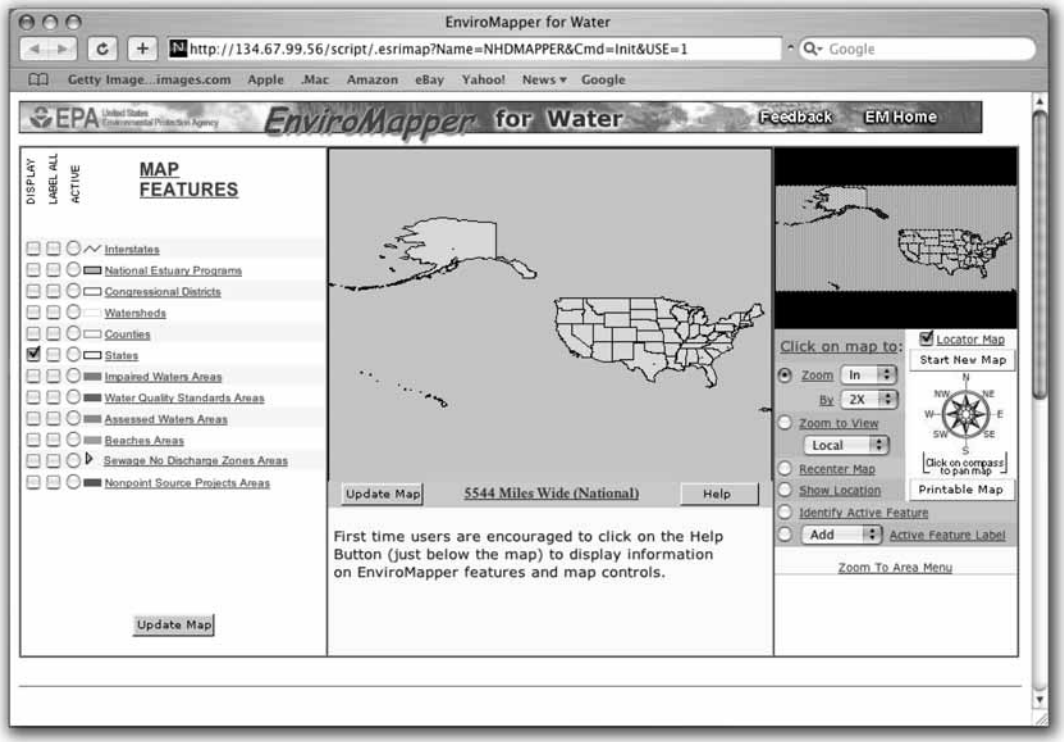
and a management plan to address them, or is in the process of doing so. For more information, visit the NEP homepage at **http://www.epa.gov/owow/estuaries/.** The Chesapeake Bay and the Great Lakes are not part of the NEP; they have their own separate but related programs and reports (sidebar at left).

Information Available from Federal Agencies

Federal agencies possess a wealth of useful watershed information that is available to the public. The following is a summary of some important information available from key agencies.

U.S. Environmental Protection Agency

- **Watershed Information Network (www.epa.gov/win)**: EPA's central location for watershed information, with links to help you find your watershed, data and maps, state water quality information, basic federal water related laws and more. Some of the many useful components of WIN include:
  - **Surf Your Watershed:** A multifaceted, information-packed site containing information on water quality, land use, trends, threats, links to other sources of information and more. (**http://www.epa.gov/surf/**).
  - **Adopt Your Watershed:** How to contact and join one of the 500 active volunteer monitoring groups and more than 4,000 watershed alliances nationwide. You may also wish to start your own watershed adoption group and learn from the lessons of those who are already at work (**http://www.epa.gov/adopt/**).
- **Enviromapper:** This interactive mapping tool allows users to look at several geographic levels of environmental data, including hazardous wastes, Superfund sites and water discharge permits. Visit the Office of Water Enviromapper link for CWA-specific maps (**http://www.epa.gov/enviro/html/em/index.html**).
- **Source Water Assessments:** Watershed-based summaries of contaminants that pose problems and risks to public drinking water supplies. Required by amendments to the Safe Drinking Water Act. From EPA's Sourcewater Assessment Program (SWAP) website, you can locate your state's SWAP website (**http://www.epa.gov/safewater/protect/swap.html**).
- **Toxics Release Inventory:** An annual summary of reported releases of toxic substances to the environment. You can search by zip code (**http://www.epa.gov/tri/**).
- **River Corridors and Wetlands Restoration:** Information on river and wetland restoration

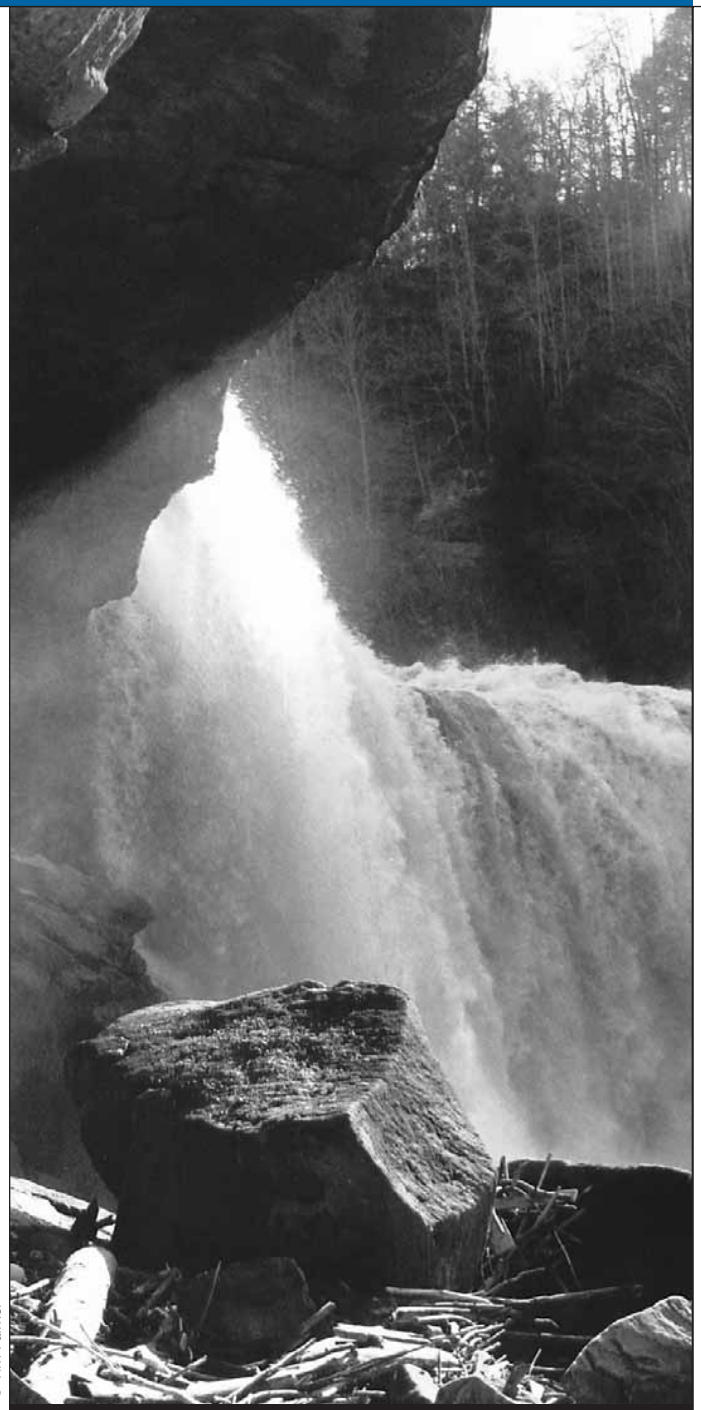


projects, proposals, ideas and contacts. This site provides a picture of restoration activities nationwide (**http://www.epa.gov/owow/wetlands/restore/**).

- **STORET Database:** An enormous national database containing decades of biological, chemical and physical data related to surface and ground water quality. The information is collected by agencies (federal, state and local), Indian Tribes, volunteer groups, academics, and others. While the database is somewhat cumbersome, it is constantly being updated and may contain valuable information for your watershed (**www.epa.gov/storet**).

U.S. Geological Survey (USGS)

- **USGS Water Quality Information:** USGS's central location for surface and ground water quality information. Links to programs, publications, labs and techniques (**http://water.usgs.gov/owq/**).
- **National Water Quality Assessment Program (NAWQA):** By studying over 50 river basins and aquifer systems throughout the country, the NAWQA Program examines the status and trends relating to the quality of the nation's ground and surface water resources. It also provides details



© Tim Palmer

Cumberland Falls, Kentucky

about how natural and human factors affect water quality (**http://water.usgs.gov/nawqa**).

- **Toxic Substances Hydrology Program:** Scientific information about the behavior of toxics in water environments. The information is used to prevent human exposure, to develop effective cleanup strategies, and to avoid further contamination (**http://toxics.usgs.gov/toxics**).
- **National Water Summary:** The NWS is a series of publications compiled in order to increase the public's understanding of the nation's water resources. Topics include wetlands, surface and ground water quality, floods and drought (**http://water.usgs.gov/nwsum**).

U.S. Fish and Wildlife Service (USFWS)

- **National Wetlands Inventory:** Information about the characteristics, extent and status of the Nation's wetlands (**http://www.nwi.fws.gov/**).
- **Endangered Species Home Page:** Information on listed species, restoration programs and habitat conservation plans. Includes state maps, database for download and proposed and candidate species (**http://endangered.fws.gov/**).

Natural Resources Conservation Service (NRCS)

- **Natural Resources Inventory:** A comprehensive, statistically-based sample of land-use and natural resource conditions and trends on non-federal lands (**http://www.nrcs.usda.gov/technical/nri/index.html**).

National Oceanic and Atmospheric Administration (NOAA)

- **State of the Coast:** Concise essays on a variety of topics related to the health of our nation's coastal areas. An underlying national database provides the foundation for the essays (**http://oceanservice.noaa.gov/websites/retiredsites/supp_sotc_retired.html**).
- **Coastal Zone Management Program:** State fact sheets, information about wildlife reserves and estuaries, and updates on coastal nonpoint pollution control (**http://www.ocrm.nos.noaa.gov/czm**).

National Weather Service

- **National Climatic Data Center:** Information on climate which is vital to studies on global climate change, El Niño, the greenhouse effect and other environmental issues. Provides the basis for for comparison between watersheds in different parts of the country (**http://www.ncdc.noaa.gov/oa/ncdc.html**).

Filling Information Gaps

Partnerships with higher education

Colleges and universities can be invaluable allies. Professors can help fill data gaps and serve on formal or informal technical advisory committees for watershed groups. Students can also be a watershed group's best volunteer researchers.

Undergraduate and graduate programs in biology, natural resource management, engineering, land use planning, political science and law can be particularly rich sources of information, advice and assistance. Professors are often delighted to design research projects that fill the double bill of meeting academic needs and the needs of watershed groups for information and analysis. If you don't already have contacts with your local institutions of higher learning, create some!

Visual surveys

One of the easiest, cheapest and most enlightening things an individual or group can do is conduct a visual watershed survey. This can be as simple as driving, hiking or paddling along your river and its tributaries. Take along a camera (one that prints the date is best) and catalogue the information that you gather. Even if many others have already done this, it's worth doing again. You can compare information and build a great watershed resource over time (sidebar at right). A number of good visual survey protocols are available from the EPA (**http://www.epa.gov/owow/monitoring/volunteer/stream/vms32.html**), River Network (**http://www.rivernetwork.org/library/rv2002v12n4.pdf**), and state water quality agencies.

Aerial surveys

Aerial surveys provide an important additional perspective; they can illustrate the land use/water quality connection as nothing else can. If possible, supplement existing aerial photography (available through agencies like soil conservation districts, land-use planning departments and NASA) with up-to-date aerial information. It is often possible to find a volunteer pilot who will help you conduct periodic aerial surveys of your watershed to monitor land use changes and trends (sidebar at right).

Water quality monitoring

Monitoring involves observing or measuring selected features of your watershed in order to assess aquatic ecosystem health and the ability of the aquatic ecosystem to support human uses, detect early

Developing a Useful Visual Survey

Your visual survey should focus on uses, values, problems and threats:

Uses: Locate places where people are using the waters, such as swimming holes, fishing access ramps and riverside picnic areas. Also determine major land use patterns along the river and throughout the watershed.

Values: Locate areas of natural or cultural significance, such as scenic areas, waterfalls and special habitats.

Problems: Look for visual evidence of in-stream problems, such as fish kills, sediment plumes, suspicious foam and eroding banks.

Threats: Identify land and water uses that might cause problems, such as large paved areas, pipes entering the water and large areas of disturbed bare soil.

Project Lighthawk Can Help with Aerial Surveys

Project Lighthawk is a non-profit international organization that brings the power of flight to conservation and designs and carries out creative environmental campaigns. Each year, Lighthawk's pilots fly hundreds of conservation missions throughout the Western Hemisphere.
(http://www.lighthawk.org/)

signals of stress, provide insight into the causes of problems, and assess whether management goals have been achieved. Your state agency should have its own monitoring program and schedule. Many states run volunteer monitoring programs as well.

A community volunteer water quality monitoring program can be a source of critical information for your watershed. These programs provide a basis for identifying problems that need immediate attention and for evaluating long-term trends. They can also educate and involve communities in the work of water quality protection as nothing else can. There are several national resources available to community-based water quality monitoring programs. Some of them include:

- **National Water Quality Monitoring Council:** The purpose of the Council is to "provide a national forum for coordination of consistent and scientifically defensible methods and strategies to improve water quality monitoring, assessment and reporting. It also promotes partnerships to foster collaboration, advance the science of monitoring, and improve management within all elements of the water quality monitoring community." (**http://water.usgs.gov/wicp/acwi/monitoring/**)

- **EPA's Volunteer Monitoring Program:** "The EPA's program encourages cooperation and information exchange within the volunteer monitoring community and expands the use of credible volunteer monitoring data at the federal, state, and local level…The EPA sponsors national conferences that bring together volunteer organizers and agency representatives; manages a listserve for volunteer monitoring program coordinators; supports a national newsletter for volunteer monitors; prepares and regularly updates a directory of volunteer monitoring programs; and publishes manuals on volunteer monitoring methods and on planning and implementing volunteer programs." (**http://www.epa.gov/owow/monitoring/volunteer/**)

- **Volunteer Monitor Newsletter:** "The Volunteer Monitor newsletter facilitates the exchange of ideas, monitoring methods and practical advice among volunteer environmental monitoring groups across the nation." Subscriptions of the biannual publication are free. Visit **http://www.epa.gov/owow/monitoring/volunteer/info.html** or write to:
  The Volunteer Monitor
  Subscriptions Office
  211 Chattanooga St., Apt A
  San Francisco, CA 94114

- **Volunteer Water Quality Monitoring National Facilitation Project:** The purpose of the Project is to "build a comprehensive support system for Cooperative Extension volunteer water quality monitoring efforts across the country. The goal is to expand and strengthen the capacity of existing Cooperative Extension volunteer monitoring programs and support development of new groups." (**http://www.usawaterquality.org/volunteer/**)

River Network Collection/Polly Brown

Monitoring on the Rio Lucero on the Taos Pueblo Indian Reservation, New Mexico.

- **National Directory of Volunteer Monitoring Programs:** "This directory lists volunteer organizations around the country engaged in monitoring rivers, lakes, estuaries, beaches, wetlands, and ground water, as well as surrounding lands. It is intended to serve as a living document that will grow and change with the continued flourishing of the volunteer monitoring movement nationwide." (**http://yosemite.epa.gov/water/volmon.nsf/Home?readform**)

Digging Deeper

Designing a Monitoring Program

Watersheds are complex, and resources for monitoring and assessing them can be thin. Collecting useful information requires planning ahead and making careful choices among possible monitoring methods. The planning process should result in a written document that describes the elements of your monitoring program. At a minimum, your document should include:

- Development of information needs, data use and the rationale for the program.
- Technical Design: choose indicators, methods, sites and schedule.
- Information Design: establish how you will manage, analyze and report the data.
- Evaluation Design: determine how you will assess the effectiveness of the program.

For assistance, contact either a representative of your state volunteer monitoring program (your state water quality agency should be able to help find this person if such a program exists in your state) and/or River Network's River Watch Program. We have guides available on developing monitoring plans and templates to help get you started. (http://www.rivernetwork.org/howwecanhelp/index.cfm?doc_id=195)

Laws and Regulations

In addition to building a strong body of information about your watershed, you may want to build a small Clean Water Act library.

- The Clean Water Act is available online at **http://epa.gov/r5water/cwa.htm**.
- The CWA's implementing regulations from the Code of Federal Regulations are available on line at **http://gpoaccess.gov/cfr/index.html.**
- Copies of your state's water quality regulations, including the current water quality standards and regulations regarding the discharge permitting program, are available from your state water quality agency. Most are available through your state environmental agency's web site. Visit River Network's database of state Clean Water Act information for contact information and available links (**http://www.rivernetwork.org/cleanwater/cwa_search.asp**), or go to EPA's website for approved water quality standards (**www.epa.gov/wqsdatabase**).

Glossary

acid mine drainage. Drainage of water from areas that have been mined for coal or other mineral ores. Because of its contact with sulfur-bearing material, the water may have a very low pH, may carry ammonia and/or magnesium (depending on the pH), and may be harmful to aquatic organisms.

acute toxicity. The ability of a substance to cause severe biological harm or death soon after a single exposure or dose. (see chronic toxicity, toxicity)

advanced wastewater treatment. Any treatment of sewage that goes beyond the secondary biological water treatment stage and may include the removal of nutrients such as phosphorus and nitrogen and a higher percentage of suspended solids. (see primary treatment, secondary treatment)

algae. Microscopic plants which contain chlorophyll and live floating or suspended in water. They also may be attached to structures, rocks or other submerged surfaces. They are food for fish and small aquatic animals. Excess algal growth can impart tastes and odors to potable water. Algae produce oxygen during sunlight hours and use oxygen during the night hours. Their biological activities appreciably affect the pH and dissolved oxygen of the water.

anti-backsliding. A provision in the Federal Regulations (CWA 303(d)(4); CWA 402(c); CFR 122.44(l)) that requires a reissued permit to be as stringent as the previous permit with some exceptions.

antidegradation. One of three components of state water quality standards. Calls for all existing uses to be protected, for degradation to be avoided or at least minimized when water quality meets or exceeds levels necessary to support the propagation of fish, shellfish and wildlife and recreation on and in the water, and for the quality of outstanding waters to be maintained and protected.

aquifer. An underground geological formation, or group of formations, containing water. Source of groundwater for wells and springs.

assessed waters. Waters in which states, tribes and other jurisdictions have monitored physical, chemical and biological parameters to determine whether or not the waters meet water quality standards and support designated beneficial uses.

assimilative capacity. The capacity of a natural body of water to receive wastewaters or toxic materials without deleterious effects such as harm to aquatic life or humans who swim in and drink the water.

bacteria. (Singular: bacterium.) Microscopic living organisms in soil, water or air that can cause human, animal and plant health problems. Bacteria can also aid in pollution control by metabolizing organic matter in sewage, oil spills or other pollutants.

Best Available Technology Economically Achievable (BAT). Technology-based standard established by the Clean Water Act as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT). Technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, oil and grease. The BCT is established in light of a two-part "cost reasonableness" test which compares the cost for an industry to reduce its pollutant discharge with the cost to a

POTW for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond BPT (see below). EPA must find limits which are reasonable under both tests before establishing them as BCT.

Best Management Practices (BMPs). Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Best Practicable Control Technology Currently Available (BPT). The first level of technology-based standards established by the CWA to control pollutants discharged to waters of the U.S. BPT effluent limitations guidelines are generally based on the average of the best existing performance by plants within an industrial category or subcategory.

best professional judgment (BPJ). The method used by permit writers to develop technology-based NPDES permit conditions on a case-by-case basis using all reasonably available and relevant data.

bioaccumulation. The retention and concentration of a pollutant in an organism.

biochemical oxygen demand (BOD). A measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

bioconcentration. The accumulation of a chemical in tissues of an organism (such as fish) to levels that are greater than the level in the medium (such as water) in which the organism resides.

biocriteria. Short for "biological criteria." Numerical and narrative measures of biological health of waters, such as the number and kind of benthic, or bottom-dwelling, insects living in a stream. Biocriteria are sometimes part of a state's water quality standards.

biodiversity. Refers to the variety and variability among living organisms and the ecological complexes in which they occur. Diversity can be defined as the number of different items and their relative frequencies. For biological diversity, these items are organized at many levels, ranging from complete ecosystems to the biochemical structures that are the molecular basis of heredity. Thus, the term can apply to different ecosystems, species and genes.

channelization. Straightening and deepening streams so water will move faster — a practice that disturbs fish and wildlife habitats, aggravates downstream flooding and interferes with waste assimilation.

chronic toxicity. The capacity of a substance to cause long-term adverse health effects in humans, animals, fish and other organisms.(see acute toxicity, toxicity)

classification. Process of assigning uses to a water body. This term is often used instead of designation, especially to describe a grouping of designated uses.

clearcut. Harvesting all the trees in one area at one time, a practice that can encourage fast runoff, erosion, sedimentation of streams and lakes, flooding and destroy vital habitat.

Code of Federal Regulations (CFR). The document that codifies all rules of the executive departments and agencies of the federal government. It is divided into fifty volumes, known as titles. Title 40 of the CFR (referenced as 40CFR) lists most environmental regulations.

combined sewer overflows (CSO). A combined sewer system carries both sewage and stormwater runoff. Normally, its entire flow goes to a waste treatment plant, but during rainfall or snowmelt, the volume of water may exceed the capacity of the treatment plant and cause overflows of untreated mixtures of stormwater and sewage into receiving waters. Stormwater runoff may carry toxic chemicals from industrial areas or streets into the sewer system.

comment period. Time provided for the public to review and comment on a proposed federal, state or local action, permit or rulemaking.

compliance monitoring. Collection and evaluation of data, including self-monitoring reports, to verify whether pollutant concentrations and loads in permitted discharges are in compliance with the limits and conditions specified in the permit.

concentrated animal feeding operation (CAFO). Large-scale animal feeding operations (e.g., poultry, hog, sheep, lamb, cattle, horse) that have created significant water quality problems in hundreds of watersheds around the country. Discharge of very high levels of nitrogen, phosphorous and bacteria associated with poorly designed and managed CAFOs have led to severe ecological and human health problems.

contamination. The introduction into water of microorganisms, chemicals, toxic substances, wastes or wastewater in a concentration that makes the water unfit for its designated and existing uses.

conventional pollutants. Pollutants typical of municipal sewage and for which municipal secondary treatment plants are typically designed; defined by federal regulation (40 CFR 401.16) as BOD, TSS, fecal coliform bacteria, oil and grease, and pH.

cumulative exposure. The summation of exposures of an organism to chemicals or adverse conditions over a period of time.

delegated state. A state (or other governmental entity such as a tribal government) that has received authority to administer an environmental regulatory program in lieu of a federal counterpart.

designated uses. One of three components of state water quality standards. Water uses identified in water quality standards that must be achieved and maintained as required under the Clean Water Act.

downgrading. The process of weakening a water body's designated use and associated protections. Downgrading is not allowed if the current designated use is an existing use or if it can be attained by implementing applicable permits. Downgrading cannot occur without development of a Use Attainability Analysis.

dredging. Removal of material from the bottom of water bodies. This can disturb the ecosystem and cause silting that can kill or harm aquatic life. Dredging of contaminated materials can expose biota to heavy metals and other toxics. Dredging activities are subject to regulation under Section 404 of the Clean Water Act.

effluent. Wastewater, treated or untreated, that flows out of a sewage treatment plant, an industrial outfall, a stormwater outfall or any other point source of pollution.

Environmental Assessment (EA): An environmental analysis prepared pursuant to the National Environmental Policy Act to determine whether a federal action would significantly affect the environment and thus require a more detailed environmental impact statement.

Environmental Impact Statement. A document required of federal agencies by the National Environmental Policy Act for federal actions that would have significant adverse effects on the environment. A tool for decision making, it describes the positive and negative effects of the undertaking and cites alternative actions.

EPA. United States Environmental Protection Agency (EPA). The EPA oversees the implementation of and compliance with the Clean Water Act.

estuary. Region of interaction between rivers and near-shore ocean waters, where tidal action and river flow mix fresh and salt water. Such areas include bays, mouths of rivers, salt marshes and lagoons. These brackish water ecosystems shelter and feed marine life, birds and wildlife.

eutrophication. The slow aging process during which a lake, estuary or bay evolves into a bog or marsh and eventually disappears. During the later stages of eutrophication the water body is choked by abundant plant life due to higher levels of nutritive compounds such as nitrogen and phosphorus. Human activities can accelerate the process.

"Fishable." The term used to represent an interim goal stated in the Clean Water Act for all waters of the U.S. — that water quality which provides for recreation in and on the water be achieved by July 1, 1983. (CWA, Section 101(a)(2))

general permit. A permit that authorizes a category of discharges under the CWA within a geographical area. A general permit is not specifically tailored for an individual discharger.

ground water. The supply of fresh water found beneath the Earth's surface, usually in aquifers, which supply wells and springs. Because groundwater is a

major source of drinking water, there is growing concern over contamination from leaching agricultural or industrial pollutants, leaching from land application of wastewater and leaking underground storage tanks.

Habitat Conservation Plans (HCPs). As part of the Endangered Species Act, Habitat Conservation Plans are designed to protect a species while allowing development. HCPs give the U.S. Fish and Wildlife Service the authority to permit "taking" of endangered or threatened species as long as the impact is reduced by conservation measures. The plans allow a landowner to determine how best to meet the agreed-upon fish and wildlife goals.

high quality waters. Waters whose quality exceeds that necessary for the protection and propagation of fish, shellfish and wildlife, and recreation in and on the water, regardless of the use designation. These waters are protected by Tier II of the antidegradation policy.

impaired waters. Water bodies not fully supporting their uses.

instream flow. The amount of flow in a stream; minimum instream flow is considered that which is required to sustain stream functions and values, including fish, wildlife and recreation.

mixing zone. An area in the receiving water body where an effluent discharge undergoes dilution. A mixing zone is an allocated part of that receiving water body where water quality criteria can be exceeded as long as acutely toxic conditions are prevented.

municipal separated storm sewer system (MS4). A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains):

- Owned and operated by a state, city, town, borough, county, parish, district, association or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act (CWA) that discharges to waters of the United States; Designed or used for collecting or conveying stormwater;
- Which is not a combined sewer; and
- Which is not part of a publicly owned treatment works (POTW).

(40 CFR 122.26(b)(8))

National Pollutant Discharge Elimination System (NPDES). A national program under Section 402 of the Clean Water Act which prohibits discharge of pollutants from a point source into waters of the United States unless a permit is issued by EPA, a state, or, where delegated, a tribal government on an Indian reservation. This provision also encourages elimination of pollutant discharges.

navigable waters. Traditionally, waters sufficiently deep and wide for navigation; such waters in the United States come under federal jurisdiction and are protected by the Clean Water Act. This term also does extend to smaller tributaries, headwaters and waters hydrologically connected to traditionally "navigable" waters.

nonpoint source. Diffuse pollution sources (i.e., without a single point of origin or not introduced into a receiving stream from a specific outlet).

nonconventional pollutants. All pollutants that are not included in the list of conventional or toxic pollutants in 40 CFR Part 401. Includes pollutants such as chemical oxygen demand (COD), total organic carbon (TOC), nitrogen and phosphorus.

nutrient. Any substance assimilated by living things that promotes growth. The term is generally applied to nitrogen and phosphorus in wastewater but is also applied to other essential and trace elements. In surface waters, excess algal growth resulting from nutrient pollution is a major concern.

outfall. The place where effluent is discharged into receiving waters.

Outstanding National Resource Water (ONRW). Also called Tier III waters. Waters that are in National and State parks and wildlife refuges, or waters of exceptional recreational or ecological significance. ONRW water quality must be maintained and protected.

pH. An expression of the intensity of the basic or acidic condition of a liquid. The pH may range from 0 to 14, where 0 is most acidic, 14 is most basic, and 7 is neutral. Natural waters usually have a pH between 6.5 and 8.5.

point source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff. (40CFR122.2)

pollutant. Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. (CWA, Section 502(6))

pollution. The man-made or man-induced alteration of the chemical, physical, biological and radiological integrity of water. (CWA, Section 502(19))

primary treatment. The practice of removing some portion of the suspended solids and organic matter in a wastewater through sedimentation. Common usage of this term also includes preliminary treatment to remove wastewater constituents that may cause maintenance or operational problems in the system (i.e., grit removal, screening for rags and debris, oil and grease removal, etc.).

priority pollutants. Those pollutants considered to be of principal importance for control under the CWA based on the NRDC consent decree settlement ((NRDC et al. v. Train, 8 E.R.C. 2120 (D.D.C. 1976), modified 12 E.R.C. 1833 (D.D.C. 1979)); a list of these pollutants is provided as Appendix A to 40 CFR Part 423.

receiving waters. All distinct bodies of water that receive runoff or wastewater discharges, such as streams, rivers, ponds, lakes and estuaries.

sanitary sewer. A sewer that transports only wastewaters (from domestic residences and/or industries) to a wastewater treatment plant.

sanitary sewer overflows (SSO). Untreated or partially treated sewage overflows from a sanitary sewer collection system that are often caused by water leaking into old pipes, pipe blockages, pipe breaks, power failures or insufficient capacity in the system.

secondary treatment. Technology-based requirements for direct discharging municipal sewage treatment facilities. Standard is based on a combination of physical and biological processes typical for the treatment of pollutants in municipal sewage. Standards are expressed as a minimum level of effluent quality in terms of: BOD_5 , suspended solids (SS), and pH (except as provided for special considerations and treatment equivalent to secondary treatment).

septic system. An on-site system designed to treat and dispose of domestic sewage. A typical septic system consists of a tank that receives waste from a residence or business and a subsurface dispersion system for disposal of the liquid effluent that remains after the solids decompose in the tank. Residual solids or sludge in tank must be pumped out periodically.

State Revolving Fund (SRF). State-administered, low-interest loans for specific water pollution control purposes. Annual federal grants and loan repayments, including interest, are used to make new loans for additional water pollution control activities. The 1987 Amendments to the Clean Water Act established the SRF program in place of the CWA's original Construction Grants Program.

stormwater. Rain or snowmelt that runs off of industrial sites, construction sites, streets, roads, parking lots and other impervious surfaces. Stormwater can carry pollutants from these areas into water bodies.

storm sewer. A system of pipes (separate from sanitary sewers) that carries water runoff from buildings and land surfaces.

surface water. All water naturally open to the atmosphere (rivers, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries).

"swimmable." The term used to represent an interim goal stated in the Clean Water Act for all waters of the U.S. — that water quality which provides for

the protection and propagation of fish, shellfish and wildlife be achieved by July 1, 1983. (CWA, Section 101(a)(2))

technology-based effluent limit (TBEL). Minimum pollutant control standards for numerous categories of industrial discharges, sewage discharges and for a growing number of other types of discharges. In each industrial category, they represent levels of technology and pollution control performance that the EPA expects all dischargers in that category to employ.

threatened waters. Water whose quality supports beneficial uses now but may not in the future unless action is taken.

tier I. The minimum antidegradation provision which requires the maintenance and protection of water quality necessary to support existing uses.

tier II. Antidegradation provision which requires that any degradation of waters that currently meet or exceed standards must be necessary, minimized and socially and economically justified.

tier 2.5. A hybrid designation created by some states. In some cases, where a state is unwilling to designate ONRWs, a Tier 2.5 designation allows new discharges into a special water body but protects it more strictly than a Tier II designation. In other states a Tier 2.5 designation is less protective than Tier II.

tier III. Antidegradation provision which requires maintenance and protection of Outstanding National Resource Waters.

total maximum daily load (TMDL). The term represents both a pollutant cap and a watershed restoration or management plan. The cap is the sum of the individual wasteload allocations (WLAs) for point sources of pollution, load allocations (LAs) for nonpoint sources of pollution, natural background levels of contaminants and a margin of safety (MOS) to account for uncertainty. TMDLs should be expressed in terms of mass per unit of time, or other appropriate measure that relates to state water quality standards.

toxic pollutant. Those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism (either directly from the environment or indirectly by ingestion through food chains) will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.

toxicity. The degree to which a substance or mixture of substances can harm humans or animals. (see acute toxicity, chronic toxicity)

urban runoff. Stormwater from city streets and domestic or commercial properties that may carry pollutants of various kinds into the sewer systems and/or receiving waters.

urbanized area. An urbanized area is a land area comprising one or more places — central place(s) — and the adjacent densely settled surrounding area — urban fringe — that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile.

Use Attainability Analysis (UAA). A structured scientific assessment of the physical, chemical, biological and economic factors affecting the attainment of a designated use. (40CFR131.3)

wastewater. The used water and solids from a community (including used water from industrial processes) that flow to a treatment plant. Stormwater and groundwater infiltration also may be included in the wastewater that enters a wastewater treatment plant. The term sewage usually refers to household wastes, but this word is often used synonymously with the term wastewater.

wastewater treatment plant. A facility that receives wastewater (and sometimes runoff) from domestic and/or industrial sources, and through a combination of physical, chemical and biological processes reduces (treats) the wastewaters to less harmful byproducts; known by the acronyms, STP (sewage treatment plant) and POTW (publicly owned treatment works).

water quality-based effluent limit (WQBEL). Effluent limits applied to dischargers when technology-based limits would be inadequate to prevent violations of water quality standards.

water quality-based permit. A permit with any effluent limits more stringent than technology-based requirements. Such limits may be necessary to protect the designated uses of receiving waters (e.g., recreation, aquatic life protection).

water quality criteria. One of three components of state water quality standards. Comprised of numeric and narrative criteria that are set to protect existing and designated uses. Numeric criteria are scientifically derived concentrations developed by EPA or states for pollutants of concern. Narrative criteria are statements that describe the necessary water quality conditions.

water quality limited segment (WQLS). Waterbody requiring more than minimum technology-based treatment or controls (advanced treatment or nonpoint source controls) to meet or maintain water quality standards. Water quality limited segments are considered threatened or impaired waters and should be on the 303(d) list.

water quality standards. State-adopted and EPA-approved standards for water bodies that include designated uses, water quality criteria and antidegradation requirements.

watershed. The land area that drains into a stream or other water body. An area of land that contributes runoff to one specific delivery point; large watersheds may be composed of several smaller "subwatersheds," each of which contributes runoff to different locations that ultimately combine at a common delivery point.

wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands are characterized by their plant life, hydric soils and hydrology.

Sources

*U.S. EPA website (**www.epa.gov**):*

- *Terms of Environment: Glossary, Abbreviations and Acronyms (**http://www.epa.gov/OCEPAterms/**)*
- *Office of Wastewater Management glossary (**http://cfpub1.epa.gov/npdes/glossary.cfm?program_id=0#B**)*
- *NPDES Stormwater Program (**http://cfpub.epa.gov/npdes/home.cfm?program_id=6**)*
- *Clean Water Act, Section 502, General Definitions (**http://www.epa.gov/region5/water/pdf/ecwa_t5.pdf**)*

*Code of Federal Regulations (40CFR), definitions from various parts (**http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm**)*
The Clean Water Act: An Owner's Manual, 1st ed., 1999.

References

WQS Handbook

EPA Water Quality Standards Handbook, (EPA-823-B-94-005) August 1994 (http://www.epa.gov/waterscience/standards/handbook/

2004 Integrated Report Guidance

EPA Guidance for 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act, July 21, 2003. (http://www.epa.gov/owow/tmdl/tmdl0103/index.html

Draft 2006 Integrated Report Guidance

EPA Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act (http://www.epa.gov/owow/tmdl/ <http://www.epa.gov/owow/tmdl/>)

2003 319 Guidance

EPA Nonpoint Source Program and Grants Guidelines for States and Territories. Fed.Reg. Vol.68, No.205, 60653-60674, 10/23/03. (http://www.epa.gov/fedrgstr/EPA-WATER/2003/October/Day-23/w26755.htm

40CFR

Code of Federal Regulations, Chapter 40 (http://www.epa.gov/epacfr40/chapt-I.info/chi-toc.htm

About River Network

Our mission is to help people understand, protect and restore rivers and their watersheds.

Today we serve more than 600 organizations of all sizes through our Partnership Program, which provides regular publications and other basic resource and support services to subscribing groups in all 50 states. We also provide targeted, in-depth training and assistance to more than 100 organizations per year through our Organizational Development, Clean Water Act and River Watch Programs. The National River Rally is now the annual focal point for professional advancement, strategy development, networking and organizing for the watershed protection community. It now attracts more than 500 participants per year from across the U.S. and beyond.

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In fall 1998 River Network launched the Clean Water Act Program. Its goal is to improve the health of the nation's rivers by helping river activists effectively implement the Clean Water Act at the state and watershed levels.

River Network has online resources and publications available that will help citizens collect information and apply it wisely. We have developed an online database of state Clean Water Act information (www.rivernetwork.org/cleanwater/cwa_search.asp), and an online Clean Water Act Course (www.cleanwateract.org).

Publications developed with other groups include "Permitting an End to Pollution, how to scrutinize and strengthen water pollution permits in your state" (with PrairieRivers Network and Clean Water Network) and "Tracking TMDLs, a field guide for evaluating proposed watershed restoration plans" (with National Wildlife Federation). Both are available on our website.

Through publications, online resources, workshops across the nation, and consultation, River Network hopes to enhance public understanding of the tools provided by the Clean Water Act and to persuade citizens to use those tools to improve the health of all watersheds.

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— Sally Bethea, Executive Director
Upper Chattahoochee Riverkeeper

"The waters of our states do not belong to state water quality agencies. As the name of the manual correctly suggests, the Clean Water Act belongs to all of us. When citizens are involved in their watershed and informed about the workings of the Act, they help us to do our job better."

— Todd Ambs, Administrator-Division of Water
Wisconsin Department of Natural Resources

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