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GROWTH PRESSURES AND TMDLS

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Summary:

This presentation seeks to provide an overview of interplay between land use and water quality programs and to highlight the role of Total Maximum Daily Loads (TMDLs) as a potential integrating mechanism among land-use, water quality, and water quantity.

Outline:

I. Land use and water quality are inextricably linked
II. The characteristics of current development patterns
III. The environmental implications of current development patterns
IV. "Smart Growth" as a potential solution
V. EPA's support for Smart Growth
VI. EPA's Smart Growth Activities
VII. TMDLs – A "New" Tool for Addressing Growth and its Water Quality Impacts

I. Land use and water quality are inextricably linked

The nation's watersheds are an invaluable resource. Watersheds are the basic landscape unit for water, and they do work for free by draining the landscape, storing and filtering water, and supporting human and non-human life. Watersheds typically have streams, lakes, and wetlands as their surface water resources, and each performs a specific task within the watershed and provides its own unique habitat for aquatic and terrestrial species. Lakes store water on the landscape. Wetlands store water as they filter and discharge it to groundwater or other surface waters. Rivers and streams drain water from rain and melting snow and carry it downstream where smaller rivers converge to make larger rivers. Larger rivers that pass through coastal watersheds eventually meet the ocean at estuaries. In an estuary, freshwater from rivers mixes with salty ocean water to create unique habitats that support a staggering array of plants and animals, making estuaries one of the most productive and valuable ecosystems. Floodplains are subunits of watersheds that also deserve attention in the discussion of watersheds. They are typically flat areas of land that border streams and rivers and often contain wetlands. Because of their proximity to water, floodplains are critical for managing rainfall, particularly during heavy storm events. We depend greatly on watersheds and the myriad of free services they provide (drainage, flood control, storage and filtering of water, recreation, aesthetics, habitat for plants and animals, navigation routes, etc.), and the Clean Water Act (CWA) helps protect them for future use (**http://www.epa.gov/epahome/laws.htm**). However, protecting water quality is becoming more challenging as populations continue to increase and as land use and the built environment (cities, towns, villages, etc.) expands to accommodate growth.

It is important to understand how land use and the built environment affect the natural environment and accordingly, how water quality is affected by the ways we use watersheds. Indeed, changes that take place in a watershed affect water quality and can compromise the watershed's ability to drain the landscape (that is, a watershed's hydrology). For example, changes that would adversely affect the hydrology of a watershed could include building high-density hotels where a coastal wetland used to be (loss of the wetland and its function in the

watershed), constructing a strip mall with a large parking lot near a small stream (the increase in impervious surface causes an increase in stormwater runoff rates and volume, adding pollutants and erosive flows to the stream), or subdividing land in a floodplain for new homes (loss of the floodplain function in the watershed). While these changes in land use may serve some peoples' needs, they also may adversely affect others who live downstream, as well as compromise the health and viability of the surrounding ecosystems. These changes also affect the economies and communities present in the watershed. That is why we must discuss population change, land use, and the impacts of current development patterns within a watershed context.

II. The characteristics of current development patterns

Currently, the dominant development pattern in the United States is sprawl, which is defined as unplanned, uncontrolled, and uncoordinated single-use development that generally occurs at the periphery of urban areas. As "greenfields" are being converted to sprawling development at a noticeable rate, existing communities are adversely impacted not only by the obvious loss of undeveloped lands like farms, natural areas, and open space, but also by the lack of investment in inner cities, where existing infrastructure does not get crucial resources for repairs and maintenance because new, peripheral development often costs more to serve than it contributes to the rate base.

As one example, studies have shown that if Maryland's current growth patterns do not change, it will consume as much land in the next 25 years as it has during its entire history. This has caused Maryland Governor Parris Glendening to note that "Maryland will go bankrupt building the roads, schools, and other facilities needed to accommodate the kind of sprawling suburban growth patterns that have characterized development in the last few decades.... It also has numerous consequences for environmental quality."

III. The environmental implications of current development patterns

Sprawl adversely affects the environment in many ways. Unplanned growth replaces critical habitats, including wetlands, riparian corridors, forests, prairies, and other natural lands and open spaces. In doing so, it critically alters ecosystem structure and function, as well as the hydrology of the watershed.

Sprawling development adversely affects water *quality*. An increase in the amount of impervious surface (roofs, driveways, roads, and parking lots) from land development has the consequence of increased amounts of runoff (nonpoint source pollution) to receiving waters during wet weather. When development alters the natural hydrology of the land, streambed erosion and sedimentation often result. In fact, siltation is the most widespread pollution problem in rivers and streams in the U.S., and sediment is the leading pollutant on the States' lists of impaired waters (developed and submitted pursuant to Section 303(d) of the CWA).

The increase in vehicle miles traveled due to sprawling land use patterns often result in an

increase in air pollution from vehicle emissions, which undermines some of the gains in air quality due to cleaner-burning fuels and emissions control technologies. Furthermore, the increases in air pollution levels are resulting in increases in the deposition of atmospheric pollutants, which has direct adverse affects on water quality, as exemplified by studies done on the Chesapeake Bay which found that atmospheric deposition contributes approximately 25% of the Bay's nitrogen load. (http://www.chesapeakebay.net/stressor1.htm)

Sprawl also affects water *quantity*. An increase in impervious surface due to development decreases opportunities for groundwater recharge to aquifers and reduces instream flows in streams that rely on groundwater for base flows. Sprawling development can also plunder groundwater resources through excessive withdrawals to water larger suburban lawns, yards and swimming pools. Larger, single-family detached units consume much more water per day for outdoor use than the amount used by single-family attached or multi-family units.

With these points in mind, Governor Kitzhaber of Oregon has said that: "Growth is a double-edged sword. Handled right, it can offer a path to a bright and prosperous future. Handled wrong, it will slice to shreds everything that makes living here worthwhile." Our challenge is to achieve the first part of that statement by using the lessons learned from the second part, and this can be done through Smart Growth.

IV. "Smart Growth" as a potential solution

Smart growth is not slow growth or no growth. Rather, smart growth is development that serves the economy, community, and the environment. It shifts the debate from "whether to grow" to "how to grow." It is smart <u>economically</u> -- paying for itself while providing high quality services, promoting competitiveness, livability, and resource efficiency; <u>socially</u> -- creating a sense of place for isolated areas by linking inner city and suburban communities into one unified entity; and <u>environmentally</u> -- protecting air and water quality, habitat, human health and decreasing wasteful consumption of land.

Characteristics of successful smart growth initiatives include:

- Investing in existing neighborhoods
- Directing new development to existing neighborhoods
- Directing development to non-hazard areas (non-floodprone/hurricane areas)
- Encouraging compact development and mixed land use
- Creating a range of housing opportunities and choices
- Creating walkable communities and decreasing congestion by providing a variety of transportation choices
- Protecting environmental quality and preserving open space, wetlands, farmland, natural beauty, and critical environmental areas.
- Encouraging community and stakeholder collaboration in development decisions
- Enhancing the sense of community and providing a sense of place

V. EPA's support for Smart Growth

Smart Growth measures convey pollution prevention benefits by preserving open space, farmland, and critical environmental areas and directing growth into existing communities through incentives that encourage infill and brownfields redevelopment, preventing sprawling development in exurban areas and the polluting effects commonly associated with it.

If development of greenfields is unavoidable, then smart growth's clustered development design principles can reduce the amount of impervious surface, thereby reducing runoff and adverse impacts to receiving waters. Stormwater control measures are also recommended to further limit the runoff leaving the site.

Fostering walkable communities through mixed land uses and providing a range of transportation choices is recommended for both existing and new communities because these measures reduce adverse impacts to air and water quality, another smart growth measure that conveys pollution prevention benefits.

Smart Growth is a means to redirect human settlement patterns in this country towards something more economically, socially, or environmentally sustainable. In 1989, *Our Common Future* defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1991 Oxford: Oxford University Press). However, too often in the past, economic, environmental, and social issues had polarized people, making it very difficult to move forward in addressing those issues. Just agreeing on a common vision for sustainability has continued to challenge us even to the present.

While definitions of 'sustainability' differ, they generally view economic, environmental, and social values as complementary and interdependent and emphasize working to sustain all three over time (typically more than one generation). Additionally, there must be widespread recognition in the community that people and nature can coexist within the watershed. Combined, these can pave the way for partnerships of diverse interests to form around the common vision of conserving and more efficiently using natural resources so that we may pass on to future generations a cleaner, healthier, safer environment. It is with this vision in mind that we can move beyond defining sustainability to actually practicing it through Smart Growth.

Smart Growth is growing as a popular movement with political support. In 1997, more than a dozen governors from both parties advanced land use and growth management issues in their state-of-the-state or inaugural addresses. In 1998, more than 30 governors spoke out on this topic in their annual addresses. In 1999, over 200 pieces of legislation regarding growth control were introduced nationwide and at all levels of government. This is particularly significant in terms of the potential to remove barriers to smart growth, which include:

- Existing economic, financial, and legal incentives to developers and real estate investors
- Local laws and practices
    - Zoning ordinances often require larger lots and wider streets, making it difficult to cluster development and decrease impervious surfaces

- Local governments are often required to fund new infrastructure and limited in their ability to assess impact fees
- Differences in cost of land (i.e., land in outer ring suburbs is less expensive than land in the urban core)

In thinking of smart growth as pollution prevention and as a timely and much-supported means of achieving sustainability, EPA is supporting Smart Growth as a forward-thinking, active, and non-regulatory strategy that supports EPA's watershed approach.

Smart Growth exemplifies the watershed approach. Clean water is the product of a healthy watershed – where urban, suburban, agricultural and forest lands, and all other parts of the landscape are well-managed to prevent pollution and to "sustain" a good quality of life for the residents. However, not all watersheds are healthy, and the problems leading to water pollution are complex and interrelated.

The watershed provides an effective framework for addressing water quality issues because it does not focus on a single issue or responsible party. Watershed-based approaches allow consideration of the range of goods and services watersheds supply and how they are related. Examples of this include water supply and quality, flood and sediment control, navigation fisheries, recreation, and habitat preservation. Furthermore, the watershed approach can call attention to problems that affect the watershed but may not lie directly in that watershed or immediately affect the watershed. The water quality impacts of atmospheric deposition is a good example of this.

Focusing on the watershed strikes the best balance among efforts to control point and nonpoint sources of pollution and efforts to protect drinking water sources and sensitive natural resources such as wetlands. A watershed focus helps identify most cost-effective solutions. It also provides opportunity for the public and various levels of government to come together to look at problems and issues and collaboratively seek solutions. Additionally, a watershed approach provides a mechanism for local governments and the public to work together across political boundaries.

Smart Growth has three factors in common with the watershed approach: place, partnerships, and participatory decision-making. First, "place" is exactly that–a geographic area like a watershed, which is generally defined as a landform in which water, sediments, and dissolved materials drain to a common stream, lake, or estuary. Smart Growth is typically regionally-based but considers watershed boundaries for water quality issues resulting from development. Second, "partnerships" is taken to mean that those who live, work, and have planning and management responsibilities in a particular area should collaborate to solve problems and address issues of concern to themselves and other area stakeholders. This is accomplished through the third factor -- a locally-driven, logical, and participatory decision-making process to plan comprehensively, enact appropriate solutions to priority problems, track progress, and report feedback from watershed/community members. With these characteristics in common, the issue becomes how to determine and implement the appropriate Smart Growth measures in a particular

watershed. This web site exemplifies the watershed approach by framing the entire discussion of Smart Growth and water quality in the watershed context rather than in terms of the municipalities, regions, or states that are located in watersheds.

Effective management of water resources requires reliable information about water quality, and EPA is working with state, tribal, and local governments to provide greatly increased information on water quality including the index of watershed indicators, 303(d) lists, and the "Surf Your Watershed" website (www.epa.gov/surf/). Local organizations can get information and some assistance through the Agency's Watershed Assistance Grants, and Adopt Your Watershed, and Know Your Watershed programs.

Intergovernmental collaboration in watershed management can a play key role in transcending political barriers by helping states and other political jurisdictions look more comprehensively at issues, solutions, and funding sources.

Alternative futures tools can help local governments and communities foster intergovernmental collaboration by forecasting potential scenarios of development. This analysis helps communities understand the potential of Smart Growth and the consequences of sprawl for their own community, including impacts on resource conservation and preservation, environmental quality, and overall quality of life. The community visioning process also helps build community consensus around development decisions, gives a greater sense of public empowerment and ability to engage constructively in issues related to smart growth, and may lead to incorporating sustainability principles and resource conservation goals into master and comprehensive plans

The Site Planning Roundtable in the Chesapeake Bay has developed a "Consensus Agreement on Model Development Principles to Protect Our Streams, Lakes, and Wetlands," and EPA has developed "Better Site Design: Handbook for Changing Development Rules in Your Community" to provide guidance on development.

VI. EPA's Smart Growth Activities

EPA's Development, Community, and Environmental Division in the Office of Policy, Economics, and Innovation coordinates the Smart Growth Network, which provides a forum for facilitating Smart Growth in neighborhoods, communities, and regions across the United States. Information on the Smart Growth Network and their growing coalition of developers, planners, government officials, lending institutions, community development organizations, architects, environmentalists, and community activists and other stakeholders in the development process is available via their website: http://www.smartgrowth.org.

EPA is also working on integrating Smart Growth principles into exisiting programs related to water quality. Beginning the current fiscal year (2000), the amount available for grants from EPA through the states for Section 319 projects has been doubled, with half of the funds targeted to areas most in need of assistance. States can currently utilize up to 15% of their annual

Drinking Water State Revolving Fund for various smart growth activities such as: Providing loans to water systems to acquire land or easements to protect critical drinking water sources; implementing programs that protect ground water sources of drinking water and providing loans to community water systems for voluntary source water quality protection measures.

Eligibilties for the Clean Water State Revolving Fund (CWSRF) loans and grants are also expanding. The CWSRF is EPA's largest source of funding for water programs –it provides "seed money" to all 50 states and Puerto Rico, which, in turn, make low- and no-interest loans to communities, individuals, and others for high-priority water quality activities. These funds can be used for a very wide array of water quality related projects, and EPA strongly encourages the use of these funds for locally-led nonpoint source controls -- a key element in addressing growth-related water quality impacts. The administration is asking that 20% of these funds be used for grants. EPA is working with states and other partners to develop ways that the Clean Water State Revolving Fund can be used to support smart growth. Ideas being considered include supporting state and local government coordination on fiscal planning, watershed planning, and land use planning to ensure that infrastructure, such as wastewater treatment facilities and sewer collection systems, is planned and developed in a manner that supports Smart Growth, and state CWSRFs establishing interest rate policies that are preferential to projects that support Smart Growth

EPA is also actively promoting the use of Low Impact Development (LID)or Conservation Design methods to provide alternatives to conventional stormwater management practices. The primary object of the LID approach is to maintain the predevelopment hydrology of the development site by using the landscape to detain, absorb and treat the runoff. EPA believes that the use of these methods will enhance communities' ability to protect surface and groundwater quality, preserve aquatic and riparian ecosystems and provide asthetic value. In addition, the costs of building and maintaining structural stormwater management systems can be significantly reduced or eliminated.

EPA has provided grants to States, local governments and nonprofit organizations to develop materials and provide training in LID methods. Several notable examples of LID related documents that EPA provided funding to develop are listed below:

Low-Impact Development Design Strategies, An Integrated Design approach, 2000 (EPA Document 841-B-00-003), Prince George's County, Maryland. This document is a national manual on the use of LID techniques.

Conservation Design for Stormwater Management, A Design Approach to Reduce Stormwater from Land Development and Achieve Multiple Objectives Related to Land Use, 1997, Delaware Department of Natural Resources and Environmental Control and the Environmental Management Center of the Brandywine Conservancy. This document contains information on the use of open space conservation and development techniques to reduce stormwater impacts.

"Site Planning for Urban Stream Protection", 1995, Metropolitan Washington Council of

Governments and the Center for Watershed Protection. This document provides information on how to protect watersheds and promote development that requires minimal increases in imperviousness and the destruction of natural areas that provide water quality protection.

A related resource is EPAs Model Ordinance Website (w/nps/ordinance/). This web site includes model ordinances to serve as a template for those charged with making decisions concerning growth and environmental protection. For each model ordinance listed, there are several real-life examples of ordinances used by local and state governments around the nation. The ordinances address matters that are often forgotten in many local codes, including aquatic buffers, erosion and sediment control, open space development, stormwater control operation and maintenance, illicit discharges, and post construction controls. There is also a miscellaneous category containing ordinances that don't fit into these sections. In addition, this web site has materials that support particular ordinances, such as maintenance agreements and inspection checklists.

EPA is also working on an initiative to quantify the water quality benefits of brownfields redevelopment projects. Although the economic, social, and air quality benefits of the redevelopment of brownfields sites have been studied, the impacts of brownfields revitalization projects on surface water quality have not been well charachterized, and this study seeks to examine the quantifiable water quality benefits associated with particular Smart Growth "best management practices" (BMPs) used in existing brownfields revitalization projects. These results will be compared to similar development on previously undeveloped land (greenfields). It is expected that the conclusions from this study will be useful in implementing a variety of water programs where BMPs are used to protect and improve water quality.

The Agency has also supported pilot projects to develop alternative futures tools and approaches that help communities envision various outcomes or futures that could be associated with different growth and development scenarios, and is providing funding to the National Association of Counties and International City/County Management Association for a watershed management project to elevate local government officials' awareness and knowledge of watershed management and Smart Growth planning, including wetlands and coastal resources protection.

EPA recognizes that development will occur and is necessary. Development can be conducted in a sustainable manner that does not result in degradation of natural resources. Many communities, however, have not fully wrestled with this issue and are only beginning to understand the dynamics of how development changes the landscape and alters the natural hydrology of the land. The Agency is actively working on other models, tools and other techniques to help communities develop in a manner that reduces our impact on our natural resources. EPA has also worked with the U.S. Service to develop beneficial landscaping specifications for the design of U.S. Postal Service facilities. EPA envisions that the use of these beneficial landscape design specifications will help designers reduce the stormwater impacts resulting from the siting and construction of new and reconstructed postal facilities. In addition the use of these techniques can provide both wildlife habitat and aesthetic value.

VII. TMDLs - A "New" Tool for Addressing Growth and its Water Quality Impacts

TMDL (Total Maximum Daily Load) refers to the maximum amount of a particular pollutant that a specific body of water can handle before it no longer meets the standards set for it by the state or tribe. Developing a TMDL is like developing a pollution budget for a river, lake or other water body: it identifies the amount of pollution the water can handle while still meeting its designated uses, then identifies the sources of pollution, and allocates the amount – the "loads" – that each pollution source is allowed to continue to discharge to ensure that the water body can meet designated use.

The legislative history behind U.S. water pollution control policy leading up to the TMDL rule has followed a continuing cycle of shifting policy emphasis between controlling water pollution primarily by managing ambient water quality or managing effluent quality -- as well as shifting administrative responsibilities between EPA and the states -- and more recently, the Indian tribes.

The first comprehensive federal legislation establishing clean water programs was the Water Pollution Control Act of 1948. Under the statute, it was "...the policy of Congress to recognize, preserve, and protect the primary responsibilities and rights of the states in controlling water pollution." Although the Water Quality Act of 1965 made water quality standards a prominent feature of federal law and required the development of state water quality standards, the enforcement process during this period prior to 1972 required that the enforcing agency demonstrate that a particular discharger was violating a stream standard or endangering the public health and welfare. Allocating waste loads among many dischargers within a stream segment proved to be a regulatory challenge, and difficulties with enforcement led to both the widespread perception that the water quality standards approach was flawed and a growing conviction that a tougher set of standards and enforcement procedures had to be developed. In 1969, the deficiencies of existing pollution control laws were vividly illustrated when the Cuyahoga River in Cleveland, choked with industrial wastes, caught fire.

With the Federal Water Pollution Control Act Amendments of 1972, the federal government, through EPA, assumed the dominant role in directing and defining water pollution control programs across the country. The 1972 amendments required technology-based, nationally uniform effluent limitations to be developed by EPA based upon the economic and technical capabilities of each industry. The amendments (now christened the Clean Water Act) also created the National Pollution Discharge Elimination System (NPDES) permit program for all point sources of pollution, providing the first major direct compliance and enforcement process for addressing the major point sources of pollution.

Section 303 (d) (1) of the Act provided that the States, with EPA review and approval, must identify waters not meeting standards and establish TMDLs for them to restore water quality. If the States do not complete these actions, EPA must do so.

Following 1972, EPA had to devote considerable resources towards developing effluent limitations on an industry-by-industry basis and implementing the NPDES permit program, which was the Agency's principal way to carry out the enforceable requirements of the act. In theory, every one of at least 60,000 municipal and industrial dischargers had to obtain a permit or cease discharging effluents by December 31, 1974. In 1975 the Environmental Defense Fund and the Natural Resources Defense Council filed suit against EPA under Section 505 of the Act, charging the Administrator with failure to perform a mandatory action by omitting regulating of certain toxic pollutants, and by June of 1976 EPA and the plaintiffs had entered into a consent decree that became the controlling element of EPA's development of toxic standards. Under the terms of the decree, EPA was to make a full-scale regulatory push for 65 "priority pollutants" and their compounds -- a total of 129 substances.

Although the statutory authority for TMDLs had been in the Clean Water Act since 1972, the first TMDL regulations were issued in 1985, when 40 CFR part 130 consolidated comprehensive water quality management planning into one section of the regulations. One of the most important provisions of the TMDL regulations at this time was the recognition of the importance of nonpoint sources in load allocations.

The Clean Water Act amendments of 1987 continued to emphasize technology-based standards for industrial dischargers; enhanced enforcement authority with increased civil, criminal, and administrative penalties; but included greater recognition of pollution problems from non-point sources. New provisions to control toxic urban runoff by requiring NPDES permits for discharges from separate storm sewers were included in Section 402 (p), which phased in storm water permits for both municipal and industrial dischargers. Section 319 required each state to assess nonpoint sources (NPS) of pollution that contribute to water quality problems and to identify water bodies unlikely to meet water quality standards without additional NPS controls. The toxics program created in Section 304(l) also emphasized the role of states, requiring EPA to assist the states in identifying water bodies that would not meet water-quality standards after implementation of "best available technology" (BAT) and "best control technology" (BCT), because of point source toxic discharges. States were required to submit lists to EPA by February, 1989. Each list includes the specific point sources of concern and strategies for controlling each source so that water quality standards will be met. Water quality must come up to standards three years after the strategy is put into operation.

The similarities between the state responsibilities after 1987 and before 1972 illustrate how some national programs and policies have come full circle. Before 1972 discharge requirements were water-quality based. After 1987 discharge limits for many permittees are again water-quality based. Before 1972 states had more discretion regarding how water quality standards could be met and had project-level control over wastewater treatment construction. After 1987 the transfer of such control from the federal to the state level was accelerated. Major program decisions are being returned to the states, while federal funding for water programs is declining.

In 1991, EPA published guidance explaining the role of TMDLs in watershed protection. In 1992, EPA amended its regulations to describe in greater detail requirements for States to submit

lists of waters needing TMDLs. Among other things, the revised regulations required States to submit lists every two years and to target waters for which TMDLs would be developed during the next two years.

Beginning in 1986 and escalating since 1996, environmental public interest organizations have filed numerous lawsuits under the Clean Water Act citizen suit provision (Section 505) alleging that EPA failed to carry out its mandatory duty to disapprove inadequate State 303 (d) (1) lists and/or to establish TMDLs to carry out State program responsibilities where States failed to do so. A Number of these lawsuits have resulted in court orders and/or settlements with plaintiffs, and a number of these settlements were based on State commitments to EPA to establish TMDLs on a specified schedule and EPA commitments both to step in if States falter and otherwise strengthen the TMDL program.

Currently, all States have EPA-approved 303 (d) (1) lists but the content and scope of these lists vary greatly among States. EPA has undertaken a variety of steps to strengthen the TMDL program, including establishing a Federal Advisory Committee.

The focus on TMDLs is appropriate, because it places a priority on impaired waters where there is still more work to be done. A closer look at the sources of those impairment also provides some evidence of the success of our water pollution control efforts over past 25 years, which have emphasized national programs to reduce pollutants from point sources such as discharges from industry and sewage treatment plants and have resulted in industry and government having invested billions of dollars in controlling their point source discharges.

Current Water Quality Conditions

Data on water quality that is collected by the states and compiled by EPA as part of a CWA report to Congress on the State of the Nations Waters [required by section 305 (b)] reveal that **States report almost 40% of assessed waters are still too polluted for fishing or swimming.** We still have over 290,000 river and shore miles as well as over 12 million acres of lakes and estuaries that cannot be used for the purposes that the states have designated – fishing, swimming, irrigation, etc.

Most of the sources of this impairment -- our biggest remaining water quality problems -- are the result of how we live, work, and play – so-called nonpoint sources of pollution. States assess the health of their water bodies and list those that are impaired on the 303(d) list. According to the 303 (d) lists:

- 218 million Americans live within 10 miles of an impaired waterbody
- States have identified about 21,000 polluted river segments, lakes, and estuaries covering Over 300,000 river and shore miles and 5 million lake acres
- Excess sediments, nutrients, and harmful microorganisms are leading causes of

impairment.

TMDL PROGRAM

The current regulations governing identification of impaired waters and establishment of TMDLs, which EPA issued in1985 and revised in 1992 (40 CFR 130.7) provide that:

State, Territorial and authorized Tribal lists must include those waters for which more stringent effluent limitations or other pollution controls (e.g., best management practices) required by local, State, or Federal authority are not stringent enough to attain and maintain applicable water quality standards;

State, Territorial and authorized Tribal lists must be submitted to EPA every two years, on April 1 of every even-numbered year; The priority ranking for listed waters must include an identification of the pollutant or pollutants causing or expected to cause the impairment and an identification of the waterbodies targeted for TMDL development in the next two years;

States, Territories and authorized Tribes, in developing lists, must assemble and evaluate all existing and readily available water quality-related data and information; States, Territories and authorized Tribes must submit, with each list, the methodology used to develop the list and provide EPA with a rationale for any decision not to use any existing and readily available water quality-related data and information; and TMDLs must be established at levels necessary to implement applicable water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

The existing regulations define a TMDL as a quantitative assessment of a water quality problem. The TMDL specifies the amount of a particular pollutant that may be present in a waterbody, allocates allowable pollutant loads among sources, and provides the basis for attaining or maintaining water quality standards. TMDLs are established for waterbody and pollutant combinations for waterbodies impaired by point sources, nonpoint sources, or a combination of both point and nonpoint sources.

Indian Tribes may be authorized to establish TMDLs for waterbodies within their jurisdiction. To date, however, no Tribe has sought or received CWA authority to establish TMDLs.

RDESIGN OF THE TMDL PROGRAM:

In 1996, the Office of Water determined that there was a need for a comprehensive evaluation of EPA's and the states' implementation of their Section 303(d) responsibilities. EPA convened a committee under the Federal Advisory Committee Act (TMDL FACA committee) to undertake such an evaluation and make recommendations for improving such implementation, including recommended changes to the TMDL regulations and guidance. The TMDL FACA committee was comprised of 20 individuals with diverse backgrounds, including agriculture, forestry,

environmental advocacy, industry, and State, local, and Tribal governments. On July 28, 1998, the committee submitted its final report to EPA containing more than 100 consensus recommendations, a subset of which would require regulatory changes. The TMDL FACA committee recommendations helped to guide the development of the proposed revisions to the TMDL, NPDES and water quality standards regulations.

The purpose of the proposed revisions to the TMDL regulations is to provide states with clear, consistent, and balanced direction for listing waters and developing TMDLs, resulting in restoration of waterbodies not meeting water quality standards. The proposed regulations would accomplish this goal by clarifying and revising the existing regulations to ensure that state 303(d) listing methodologies are more specific, subject to public review, and submitted to EPA for review eight months prior to submission of the list. State §303(d) Lists are to be comprehensive listings of all waterbodies impaired or threatened by pollutants and pollution: ("Pollutants" are residue, wastes, materials, etc.; "Pollution" is human-induced alteration of the water's integrity) Lists must include waterbodies threatened or impaired by all sources --Point, nonpoint sources, air deposition, and hydrologic modification..

The new format for comprehensive §303(d) Lists would organize the lists into four parts:

Part 1 -- waterbodies impaired or threatened by one or more pollutants or an unknown cause
Part 2 -- waterbodies impaired or threatened by pollution
Part 3 -- waterbodies with EPA approved or established TMDLs and water quality standards not attained
Part 4 -- waterbodies expected to attain water quality standards by next listing cycle

Under this new format, TMDLs would only be established for waters in the first category. In addition, impaired waters would remain listed until water quality standards are achieved;

The proposed regulations would also include a new requirement that states establish and submit to EPA schedules for establishing TMDLs with no longer than a 15 year timeframe for all waterbody and pollutant combinations; and a priority list of TMDLs to establish no later than five years from listing.

A new requirement would also be included to require that states assign a high priority to waterbody and pollutant combinations that are designated as public drinking water supplies and that cause a violation of the maximum contaminant level, and/or for pollutants causing an impairment or threat for species listed as endangered or threatened under section 4 of the Endangered Species Act.

The new regulations would clarify that a TMDL must contain the following 10 specific elements:

1. Name and location of the impaired or threatened waterbody;
2. Identification of the pollutant and the amount of the pollutant that the waterbody can receive and still meet water quality standards;

3. Identification of the amount by which the pollutant must be reduced for the waterbody to meet water quality standards;
4. Identification of the source or sources of the pollutant;
5. Determination of the amount of the pollutant that may come from point sources;
6. Determination of the amount of the pollutant that may come from nonpoint sources;
7. A margin of safety;
8. Consideration of seasonal variations;
9. Limited allowance for future growth and reasonably foreseeable increases in pollutant loads; and
10. An implementation plan.

For TMDLs to be approvable by EPA, they must also have an implementation plan with elements such as lists of actions needed to reduce pollutant loadings; timelines describing when these actions will occur; reasonable assurances that the wasteload allocations for point sources and the load allocations for nonpoint sources will be implemented; legal authorities to be used; estimates of the time it will take to meet water quality standards; monitoring or modeling plans to determine if reductions are being achieved; milestones for measuring progress; and plans for revising the TMDL if progress is not being made.

The proposed changes would also ensure that the public will be notified and have the opportunity to comment on lists, priority rankings, schedules, and TMDLs prior to submission to EPA; and allow the public to petition EPA to establish TMDLs where a state has substantially failed to do so consistent with the state's schedule.

EPA has also proposed revisions to the NPDES and water quality standards regulations in order to achieve further progress toward attainment of water quality standards in impaired waterbodies after listing and pending TMDL establishment, and to provide reasonable assurance that TMDLs, once completed, will be adequately implemented. EPA may also, in the future, promulgate federal water quality standards for states, pursuant to section 303(c)(2)(B), to ensure consistent, nationwide application of the new requirements in the period between listing and TMDL establishment.

The proposed regulations would accomplish this goal by clarifying and revising the existing regulations to:

Provide EPA the authority to object to, and ultimately reissue, expired and administratively-continued permits for discharges to impaired waterbodies in NPDES-authorized states where reissuance is necessary to ensure reasonable further progress towards meeting water quality standards while a TMDL is being established or where it is necessary to ensure that a completed TMDL is adequately implemented; and

Provide EPA the authority to designate certain operations such as Concentrated Animal Feeding Operations, Concentrated Aquatic Animal Production Facilities, and certain silviculture operations as point sources and require them to obtain NPDES permits after

completion of a TMDL in cases where EPA is required to establish the TMDL.

The proposed regulatory revisions to the TMDL program were out for public comment between August 23 of 1999 and January 20 of this year. Approximately 34,000 comments were received (about 30,500 form letters and more than 3,500 comment letters). We expect to make revisions and issue final rules in the summer of 2000.

These proposals have been the target of intensive lobbying campaigns. EPA welcomes informed debates about science and public policy, but many of the claims made by the opponents of the proposal are simply untrue. Below are some of the "myths"

Rumor: *EPA is trying to impose a "top down" approach to water pollution control.*
Reality: The TMDL program offers just the opposite. States set water quality standards, tailored to each waterbody. States identify polluted waters. States decide how pollution reductions should be achieved. State voluntary and regulatory programs are the primary mechanisms to implement change. EPA plays a secondary and review role, acting when States do not, and approving State actions that are reasonable and based on sound science.

Rumor: *EPA lacks legal authority to include ALL pollution sources in TMDLs.*
Reality: The long-standing requirement to look to all sources of pollution in developing a TMDL has been upheld in court and makes common sense. Current regulations, as modified in 1985, require that all polluted waters need TMDLs – pollution budgets – no matter what the source of pollution.

Rumor: *EPA is rejecting voluntary and incentive-based approaches to pollution control.*
Reality: Voluntary and incentive-based approaches are critical to restoring impaired waters. These control measures will be given full credit in development of TMDLs. Moreover, EPA and other Federal agencies are substantially increasing funding for these voluntary nonpoint pollution control programs.

Rumor: *EPA will mandate that all forestry operations get Clean Water Act permits.*
Reality: EPA and USDA recently agreed that States should take the lead in assuring that forestry operations do not cause water quality problems. In States that have a strong forestry water quality program, the Clean Water Act permit requirement will not apply. No permits would be required for five years so that States have an opportunity to design effective forest water quality programs. After five years, in States without such programs, best practice permits might be used on a case-by-case basis as a last resort to achieve State adopted water quality standards. Existing requirements for logging operations stay in place.

Rumor: *Information to identify polluted waters needing TMDLs is not available.*

Reality: States and EPA have good data on water quality and are able to identify polluted waters. A recent study by the General Accounting Office found that some States may not have identified all their polluted waters. EPA agrees that additional time will be needed to completely identify all polluted waters, but this additional assessment should not delay efforts to restore waters now known to be impaired. In addition, by allowing 15 years for the development of TMDLs, there is time to add to the screening information used to identify problems any additional information that is needed to develop pollution budgets.

Rumor: *EPA is rushing the development of the new regulations and not considering comments by States and others.*
Reality: EPA began the process of revising the existing regulations over three years ago by convening a Federal Advisory Committee with diverse stakeholders including State, industry, and agricultural interests. Since publishing the proposed revisions to the regulations, EPA has met with States and others to hear views and comments and has carefully reviewed all the comments submitted on the proposed rule. In a letter dated April 6, 2000, EPA identified over a dozen major changes it expects to make in the final regulations based on the comments received. The US Department of Agriculture, which had indicated serious concerns with the proposed regulations, recently released a Joint Statement with EPA describing agreement on changes needed to the final regulations.

For More Information: TMDL homepage - http://www.epa.gov/owow/tmdl

TMDL's and GROWTH

Total Maximum Daily Loads can play an important role in creating more sustainable communities, providing an opportunity for States to work with communities to ensure that they can plan for development that will attain their water quality goals.

TMDLs offer a means to monitor, assess, and manage all sources of pollutants in a watershed: they also offer opportunities for public involvement in the planning and implementation process because the TMDL process requires stakeholder/public involvement for implementation actions, as well as all levels of government, and other jurisdictions in the same watershed.

EPA's new TMDL Regulations and Guidance documents will provide a framework for examining pollutant sources on a watershed basis and developing implementation plans to achieve water quality goals. To encourage smart growth, states and local governments can include incentives within a TMDL for redevelopment of urban lands and protections for critical habitat, agricultural lands and open space. Towards this end, EPA is supporting the development of a "Guidance for developing TMDLs in Urban Watersheds," which is being developed by the Center for Watershed Protection (www.cwp.org/)

In an effort to protect pristine resources, improve air quality, and reduce urban sprawl, many communities have already instituted regional planning efforts designed to concentrate

development in already urbanized areas. Some municipalities have instituted watershed-based zoning, which directs development away from pristine subwatersheds and towards subwatersheds of impacted urban streams, others have encouraged development within urbanized corridors and "brownfield" redevelopment, where existing or past development sites are redeveloped and "greenfields" are preserved. One concern that has been raised regarding the application of TMDL regulation to urban watersheds is that setting a loading cap within an urban watershed may drive development away from urban watersheds, and into more pristine areas that are not in the watershed of a listed waterbody.

There are several ways to address this issue. The State can ensure its antidegredation policies, which are intended to protect waters where existing water quality is better than the water quality standards, is implemented as vigorously as its TMDL program. States may also consider reclassifying the water quality standards for some urban streams (consistent with EPA policy and regulation on use attainability analyses) to allow for more growth in urban areas and alleviate development pressures from greenfields. In cases where the listed water is relatively large, and urban land represents only a fraction of the total drainage area, the TMDL writer may incorporate pollutant trading, allowing for increased loads in urbanized subwatersheds while providing for additional protection in more pristine watersheds.

The issue is complex, because many communities currently exceed their TMDL and are also experiencing rapid growth in the watershed that has the potential to generate even more pollutant load. Because the proposed rule requires an allowance for reasonably foreseeable increases in pollutant loads, the TMDL writer may have to calculate the potential for additional load from additional development. The "Comprehensive Urban Source Spreadsheet" (CUSS) model that is being developed by the Center for Watershed Protection recommends that a "new growth" calculation be added to the TMDL if new development is forecast to increase the impervious cover by more than 5%. The methodology makes allowances to promote smarter development by having the CUSS Model assume no net increase in pollutant loads from infill and redevelopment -- in fact, if redevelopment projects incorporate advanced stormwater management or reduce existing impervious cover, they are actually credited with reducing loads.

If properly applied, TMDLs have the potential to serve as an umbrella for watershed and Smart Growth approaches, providing the critical framework for sustainable development and livable communities.