STREAMLINES

A Newsletter for North Carolina Water Supply Watershed Administrators

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Source Water Protection

No water supply is immune to degradation. Both ground and surface supplies are vulnerable to contamination from natural causes and from human activities. Acute incidents such as hazardous materials spills may also pose a serious threat. However, as of 1996, 140 municipalities nation-wide were able to provide their citizens clean drinking water without building filtration plants because of the excellent water quality and source water protection measures in place. This figure illustrates the great potential in protecting water supply watershed areas. Even water that is currently treated needs source protection.

Dirty Water is Expensive

There are water supplies in North Carolina and across the nation which have been abandoned because the water quality degraded over time or did not meet water quality standards. Boston, which had the first public water supply in the nation, was also one of first municipalities to abandon a major water supply. Lake Cochituate, draining a 17 square mile watershed, began delivering up to 10 million gallons a day to Boston in 1848. A century later, the watershed area had been overrun by sprawl and declared unsuitable for drinking water supply.

Replacing a water supply is expensive and may not even be an option due to insufficient quantity. While North Carolina is generally blessed with an abundant supply of water, there are certainly instances of shortages -- both long and short term. The development of a new surface water supply source requires outlays for permits, biological and hydrological studies, treatment and infrastructure development, and, in some cases, land acquisition. In addition, water supplies are required by federal and state law to meet a myriad of regulations for both naturally occurring and human-sourced contaminants. Pollutant removal from source water requires expensive treatment and often retrofitting of existing equipment, as well as high operation and maintenance costs.

Last year in the U.S., nearly 2.7 million gallons of bottled water were consumed; and market research indicates that sales are increasing. Each year, Americans spend nearly $3 billion on bottled water and another $1.4 billion on home filtration. Thus, the obvious question: if we are willing to spend so much money on bottled water, are we willing to spend it on water supply protection for our tap water? As evidenced by the passage of California's Proposition 204 -- the Safe, Clean and Reliable Water Supply Act, New York's Clean Water, Clean Air Bond, and North Carolina's establishment of the Clean Water Management Trust Fund, citizens and elected officials are saying *YES*!

The Clean Water Management Trust Fund

In 1996, the General Assembly created the Clean Water Management Trust Fund

(CWMTF) for the purpose of helping to finance projects that specifically address water pollution problems and focus on upgrading surface waters, eliminating pollution and protecting and conserving unpolluted surface waters, including drinking water supplies. The fund was also created to establish a network of riparian buffers and greenways for environmental, educational and recreational benefits.

According to the enabling statute (Article 13A, Chapter 113), 6.5 percent of the unreserved credit balance remaining in the state's General Fund at the end of each fiscal year shall be allocated to the CWMTF. Approximately $47 million was allocated to the Fund from the FY '96 credit balance, a portion of which established the state's Wetland Restoration Program. It is expected that an additional $30 million will be allocated at the end of FY '97. An eighteen member Board of Trustees, appointed by Governor Hunt, Senator Marc Basnight, and House Speaker Harold Brubaker, has the authority and responsibility to distribute the money as grants. The enabling legislation also states that the Board of Trustees may require a match of up to 20 percent of the amount of the grant awarded.

The Board of Trustees approved grant application procedures and evaluation criteria applicable to the CWMTF. Grant proposals will be considered during two funding cycles each year. The first cycle closed on July 1, 1997 and it is expected that the second cycle will close on December 1, 1997. Eligible applicants include 1) state agencies, 2) local governments or other political subdivisions of the state and 3) nonprofit corporations whose primary purpose is conservation, preservation and restoration of the state's environmental and natural resources.

For more information on the CWMTF or to receive a grant application, please contact the CWMTF in Greenville, NC at (919) 830-3222.

Federal funding is also becoming available through the reauthorization of the Safe Drinking Water Act which created the Drinking Water State Revolving Fund.

SDWA 1996

The Safe Drinking Water Act Amendments of 1996 give the states "more resources and more effective authority to attain the objectives of the [original] Act." With the 1996 revisions, SDWA definitively connects watershed protection and safe drinking water. The SDWA now requires states to conduct source water delineations and assessments: that is, to establish source water protection areas and assess and make public the susceptability of public water supplies to contamination. States may use existing watershed delineations and assessments to fulfill these requirements.

Source Water Protection Challenges

There is not a person around who, when asked if clean water is an appropriate goal, would say no. However, there are barriers or challenges that can make source water protection programs difficult to implement. Three such challenges are:

1. Watersheds do not follow political boundaries
2. Watershed management should occur before development
3. Public perception and political reality

Watershed Boundaries

Watershed boundaries are determined by topography, not by political jurisdictions. As such, there are often multiple local governments and federal and state agencies involved. Each jurisdiction or agency may have different water quality and quantity goals, which results in more complicated solutions to the basic problem of how to protect raw water supplies. In addition to the multiple jurisdictions and agencies involved, there are often upstream/downstream issues where the water supply; and thus the protective measures necessary may not be located within the community that actually uses the water. In this case, there is often a trade-off between having clean water (water supplier) and having development (upstream community). The upstream/downstream issues lead to "turf" battles -- both physical and perceptual. Physical turf battles involve a dispute over land or, where acquisition is attempted, dispute over the value of the land. Perceptual turf battles are more difficult to overcome and involve the belief that watershed management and economic development are mutually exclusive. The truth is that they are mutually beneficial -- clean water is crucial for a strong economy.

Management Before Development

Unmanaged development is the greatest threat to a watershed's health. Land within a watershed is like a funnel that collects rainwater and directs it, by stream or aquifer recharge, to the pool from which we drink. Whether the pool is a reservoir or stream above the ground or an aquifer below it, the quality and quantity of the water retained depend heavily upon the condition of the watershed.

Ideally, watershed management should happen before development occurs. Both point and non-point source pollution control measures are essential for cleaning up existing pollution and for preventing pollution from new development. In North Carolina, the state regulates point source discharges through the National Pollution Discharge Elimination System (NPDES) program. Other state programs include the regulation of landfills, roadway construction, and agricultural practices. However, the locational aspect of all land uses is regulated at the local level. Only local governments can effectively stop polluting land uses from developing within watershed areas. Progress in watershed management occurs with local commitment to controlling land use within the watershed through measures such as growth management, sensitive resource protection, and stormwater and wastewater management.

Public Perception and Political Reality

Watershed management does not have to be viewed as a trade-off between environmental and economic development goals; it is often a balancing of many goals. The first and most important step in the source water protection process is the identification of stakeholders in the watershed. Everyone, including local government officials, environmental groups, chambers of commerce, agricultural interests, and citizens must be involved and become a part of the process. Subsequent steps include review of existing policies and laws and an inventory of potential threats to the water supply. These steps lead to the establishment of source water protection goals. These goals may include preservation of existing water quality, allocation of additional water sources, and preservation of farmland or open space. Each jurisdiction or stakeholder may not have the same goals. The key to a successful agreement is to find "acceptable" goals and to balance policies and protection measures to achieve this.

Two political constraints to successful source water protection include institutional structure and staff and financing considerations. In North Carolina, decision making is done at the local

and state level -- there is not a regional form of government. Because of this, watershed management must be done cooperatively, but coordination may be difficult. Regional agencies, such as Councils of Government, may help, but there are still numerous issues such as staffing, public education efforts, and legal challenges where the authority or responsibility may not be clear. Costs associated with source water protection include administrative and staffing costs, monitoring and analysis costs, and the costs of effective public relations and public education programs. These costs must be shared equitably between the jurisdictions and agencies involved.

Conclusion

Even with the challenges mentioned, the value of source water protection can not be underestimated. How can we put a price tag on the assurance of good, clean water for ourselves, and for those that will come after us? Once development occurs, it may be difficult to mitigate its effects on downstream water quality. Once a bottle of water is consumed, it is gone. Once a water treatment plant is built, it has to be operated, maintained, upgraded, and eventually replaced. But, if we protect the source of our drinking water -- aquifers, reservoirs, and water supply watersheds -- we can go a long way toward having a safe supply of drinking water forever.

Resources

- "Protecting the Source: Land Conservation and the Future of America's Drinking Water." The Trust for Public Land; San Francisco, CA, 1997.
- "Source Protection: A Guidance Manual for Small Surface Water Supplies in New England." New England Interstate Water Pollution Control Commission, 1996.
- "Local Ordinances: A User's Guide." Terrene Institute and the U.S. EPA Region 5 Water Division, 1995.
- "Tap Water at Risk (series)." The Houston Chronicle; Hearst Newspapers; Houston, TX, June 6-8, 1996.
- "Safe Drinking Water Act Amendments of 1996: General Guide to the Provisions." USEPA Office of Ground Water and Drinking Water, August 1996.

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