



The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman

Watersheds. They are first simply defined as “regions draining into a river, river system, or body of water.” However, a second dictionary definition is a “crucially important...factor, time or event.”

Both definitions characterize watersheds in relation to our state's future.

Watersheds, in many cases, are becoming the building blocks for environmental change and community growth in Pennsylvania. Watersheds are being recognized as the cement that ties regions together; as the common denominator in equations as diverse as water quality, growth and planning. As Pennsylvania continues to struggle with the drought that exists in many areas of the state, the health and sustainability of watersheds truly represent a “crucial factor” for communities and citizens.

Watersheds - “crucially important...factors”

In regard to the first key role watersheds are playing, the state Department of Environmental Protection (DEP) is basing its major planning effort for the future on watersheds and the commonalities they share.

(continued on page 8)

In This Issue...

- The Chairman's Corner p. 1
- Notes From the Director p. 2
- Research Briefs p. 3-6
 - ✓ Pacific Northwest to be Springboard for Clean Energy?
 - ✓ Sprawl and the Federal Government
 - ✓ Fresh Water in North America
 - ✓ Mine Drainage and Pollution Prevention
- On the Horizon p. 7
- Response Requested to Mailing List Update p. 7
- Contacting the Joint Conservation Committee p. 8



Notes From the Director

Craig D. Brooks, Director

The transformation of a bayside power plant into a maritime museum and library is not the biggest brownfield redevelopment project during the six-year run of Pennsylvania's Land Recycling Program, but it may be one that has the biggest economic impact. When an old coal plant along Presque Isle Bay in Erie was about to be shut down, its owners, GPU Energy, began looking for ways to clean up and restore the site. After consulting with a developer, the company teamed up with city and county governments, and DEP, which decided that the \$117 million project had merit.

For more than 80 years, GPU's Front Street Station generated electricity through a 118-megawatt coal-fired power plant but in 1989, GPU began the facility's closure. Environmental contamination at the site was addressed through the Land Recycling Program. In addition to cleaning up the land, the developers converted part of the old plant into the Erie Maritime Museum, highlighted by a replica of the U.S. Brig Niagara (Commodore Perry's ship in the Battle of Lake Erie). The site is also home to the Erie County Library and civic auditorium, a hotel, residential space and shops.

Now the neighboring area is feeling the spillover effect. A large hotel and convention center are already financed and about to be constructed nearby. And, given the site's bayfront location, commercial activity is being generated uptown from the lake area. This project is an excellent example of the positive environmental and economic impact Pennsylvania's Land Recycling Program has had on a community. As a result, the project received the Grand Prize Phoenix Award in the fall of last year - the highest

national honor in brownfield development. The project was selected from entries received from throughout the country.

Pennsylvania's Land Recycling Program has become a national model for the revitalization of old industrial sites and can boast about several other developments in Pennsylvania that have received the Phoenix award in recent years: the Pittsburgh Technology Center, Pittsburgh; Sovereign Oil Redevelopment, Philadelphia; Ingersoll-Rand Redevelopment Project, Washington County; and the Industrial Plaza of York, York County. But for many cities, one of the greatest challenges is *how* to redevelop old, abandoned industrial land.

A bill recently signed into law by President Bush will help. The law will give more money to cities to clean up their brownfields by doubling the amount of funding available for 2003. The law authorizes up to \$200 million per year for assessing and cleaning up brownfields and expands liability protection for those willing to develop such brownfields. Liability protection is provided to purchasers, contiguous property owners, and landowners who did not contribute to a site's pollution.

As Pennsylvania's program expands, DEP will once again offer workshops to educate people involved in the Act 2 process. These workshops provide an opportunity to learn about recent regulatory changes and also offer information of a non-technical nature. The workshops will be held in Valley Forge (space filled), Lancaster and Pittsburgh, Pennsylvania starting in May 2002. For dates and details, visit DEP's website at www.dep.state.pa.us/dep/deputate/airwaste/wm/landrecy/Workshops/Workshop.html.

A bill recently signed into law doubling available funding will give more money to cities to clean up brownfields.

Did you remember to respond to Lynn about whether you wish to continue to receive the *Environmental Synopsis* each month? If not, see page 7 for details.



Research Briefs

Each month, the committee's staff researches and prepares a number of "briefs" on several topics relevant to the Joint Conservation Committee's mission. Very often, these briefs include references to reports and further research on the topics so that readers may pursue issues on their own.

Pacific Northwest Positioned to Lead Global Clean Energy Revolution

— Tony M. Guerrieri, Research Analyst

One of the most notable economic developments in recent years has been the rapid increase in clean energy technology. A report by Climate Solutions, a Northwest non-profit organization that works to establish the Pacific Northwest as a world leader in the development and export of clean energy technologies, examines the potential for explosive growth in the Pacific Northwest's clean energy industry.

According to the report, *"Poised for Profit: How Clean Energy Can Power the Next High Tech Job Surge in the Northwest"*, clean energy industries are vital to the region for several reasons. They are an important source of employment and income for a significant number of people. In Washington, Oregon, and British Columbia, clean energy companies employ some 6,000 people and do \$1.4 billion in business annually. As these industries develop and expand and markets grow, they will add new employment and revenue in the region, as well as throughout the United States and overseas. The study forecasts that clean energy technology will reach \$4 billion a year in the region by 2020, creating as many as 32,000 new jobs.

The Pacific Northwest enjoys a number of advantages that will accelerate its development as a major contributor to worldwide clean energy markets. The Northwest is already home to several world-class companies in the clean energy field, as well as hundreds of energy efficiency firms and dozens of smaller and newer companies. In addition, the Northwest's Pacific Rim business and cultural connections put it in touch with the world's largest potential markets for clean energy. These factors will make the Pacific Northwest an important player in the

global clean energy economy, which the report estimates will reach \$180 billion in 2020.

Over the next 20 years, global energy investment is anticipated to be \$27 trillion. As the climate change threat becomes more obvious, the report indicates that much of that investment will go to clean energy. The report reviews the technologies and markets and identifies the businesses which lead the region in these efforts. The report evaluates the status of several clean energy technologies including wind power, geothermal, biomass energy, hydro, solar, fuel cells, power system technologies, and energy efficiency.

Global energy investment is anticipated to be \$27 trillion in the next two decades – much of it expected to be clean energy.

The Pacific Northwest is already a world leader in fuel cells, and has the ability to develop global leadership in power systems and solar photovoltaics as well. Several Northwest companies in this sector are world leaders in the development and manufacture of silicon ingots. Other firms integrate photovoltaic components with batteries to form stand-alone solar power systems. Wind, energy efficiency, and biomass energy sources also offer very substantial economic development potential in the region.

The report cites the need for increased support from local, state, and federal governments to promote growth in these industries. The report outlines and examines three policy recommendations that could lead to the further development of clean energy technologies:

— **Technology development** – Like other high technology ventures, technology-based clean energy businesses need access to high-quality research facilities, skilled workers and scientists.

— **Commercialization** – Clean energy businesses with new technology must find ways to commercialize that new technology in a marketable way. State or local

JCC governments might sponsor a business roundtable or help businesses create an association to work on their behalf in networking, seeking venture funds, and lobbying.

— **Market development** – For clean energy businesses, success in the marketplace with a new product or service often depends on their ability to work with utilities to gain access to power markets.

A copy of the report may be found at the Climate Solution's website at <http://www.climatesolutions.org/pubs/pdfs/CleanEnergyReport.pdf>.

Federal Incentives Could be Created to Reduce Sprawl

—Jason H. Gross, Research Analyst

The General Accounting Office (GAO) recently released a report entitled *"Federal Incentives Could Help Promote Land Use That Protects Air and Water Quality"* under the auspices of the House Sustainable Development Caucus. The purpose of the report is to determine the extent to which local transportation planners and state and local air and water quality managers consider the impacts of different land use strategies in their attempts to protect air and water quality. The report also identifies actions the federal government can take to help transportation, air quality, and water quality officials come together and make sound land use decisions that protect the environment.

In order to determine the best ways to assess land use impacts on air and water quality, the GAO surveyed state, local, and federal officials who are responsible for monitoring and meeting federal air quality standards, as well as 32 individuals who are knowledgeable about water quality issues, land use, economics, and environmental law.

According to the GAO, the report is prompted by the continued conversion of open space into urban and impermeable land uses. This raises concerns among the general public in regards to open and green space and general environmental health. Increasing traffic congestion has focused public opinion on land sprawl issues in urban and suburban areas where green space has been in competition with impermeable land use. In response to these concerns several states have implemented "smart growth" plans which encourage the following:

— redevelopment in established urban areas to minimize the tendency toward urban sprawl; and

— development that locates denser or geographically compact housing within walking distance of services such as stores, schools, jobs, and transit systems, decreasing dependence on autos and reducing the tendency to expand outward to green space.

According to the report, utilizing measures such as "smart growth" are important because certain land use patterns can contribute to poor air quality. Increased reliance on automobiles in congested areas increases pollutants that contribute to carbon monoxide and high ozone levels. The prevalence of these gasses in urban areas has caused increasing rates of respiratory and cardiovascular diseases among people who live there.

The report lists four strategies that federal agencies could and should do to help mitigate environmental impacts of land use.

According to the GAO, sprawl can also impair water quality. As sprawl rates increase, the amount of paved and other impervious surfaces increase, contributing to polluted storm water runoff, which threatens public health, destroys aquatic habitats, and in turn hinders economic activity.

The report puts forward that federal agencies could and should do more to help remove barriers and provide incentives for mitigating environmental impacts of land use. Among suggested initiatives are:

— creation of financial incentives for transportation and environmental strategies leading local decision makers to work together on land use strategies to limit adverse environmental impacts;

— contribution to the technical capacity of local governments to assess and mitigate land use impacts;

— assisting in educating the public and local officials about the environmental impacts of transportation and land use decisions; and

— providing alternative development strategies that better protect air and water quality.

The exact methods of providing assistance have yet to be determined. The GAO is in the process of formulating recommendations on ways that the Environmental Protection Agency and Department of Transportation can better focus and coordinate their activities and provide additional incentives, technical support, and outreach toward promoting a closer association between effective land use policies and environmental protection.

For copies of the report please call the GAO at 202-512-3841 or go to the World Wide Web at www.gao.gov/cgi-bin/getrpt?GAO-02-12.

Report Examines Environmental Indicators Across North America

— Tony M. Guerrieri, Research Analyst

Environmental problems threaten the biodiversity and climate of the planet. Yet, most countries act independently to solve such problems. The most efficient way to address environmental issues in North America would be collaborative action by the United States, Canada, and Mexico, according to a report by the three-nation Commission for Environmental Cooperation, established as an offshoot of the North American Free Trade Agreement (NAFTA).

The report, entitled “*The North American Mosaic: A State of the Environment Report*”, is the first-ever comprehensive look at the state of the North American environment. It profiles 12 environmental indicators including: forests and woodlands, agriculture, fresh water, biodiversity, marine and freshwater ecosystems, minerals and energy use, transportation, air quality, climate change, natural disasters, wastes, and population trends.

The supply of freshwater, in particular, has irreplaceable value and enormous potential for affecting many sectors of the economy, providing, as it does, water for drinking, industry, agriculture, energy production, transportation, and recreation.

Collaborative action among the U.S., Canada and Mexico on environmental issues – particularly in regard to water supply – is recommended.

Among the report’s findings is that North America’s abundant surface and groundwater resources represent 14 percent of the world’s renewable freshwater. The Great Lakes alone contain 18 percent of the world’s surface water. Most of the continent’s renewable freshwater, however, is stored in the ground.

Freshwater is unevenly distributed in the continent. Canada has about half of North America’s renewable freshwater resources. On a per capita basis, this is 10 times more than in the United States and 20 times that of Mexico. However, 60 percent of Canada’s water flows north, while 90 percent of the population lives in the southern part of the country. Canada has developed more water diversions than any other country in the world, primarily to generate hydroelectricity.

Residents of the United States and Canada are the world’s largest per capita water consumers (using about twice as much per person as Mexicans) and demand is growing, especially in some very dry areas. For example, dramatic population growth is predicted to continue in the dry interior of the western United States – Las Vegas is the fastest growing city in the nation – and may increase by more than 30 percent by 2020.

Agriculture in Mexico and the United States accounts for the largest proportion of total water consumption in North America. It has been estimated that only about 30 percent of water withdrawn from rivers or lakes for irrigation returns to its source. A large share of irrigation water is pumped from underground sources that were created by the accumulation of small amounts of rain over many centuries. Over 75 percent of North America’s irrigated cropland is in the United States, while only 2.5 percent of the region’s irrigated land is found in Canada.

As evidence of the effects of growing use, heavy demands for water are lowering underground water tables. The Ogallala Aquifer that underlies the Great Plains, for example, is one of the largest aquifer systems in the world, with water resources equivalent to Lake Huron. The rate of water table decline in this aquifer peaked at one meter per year before slowing in recent years, but the report warns that depletion is still faster than recharge.

Groundwater is becoming a particularly important issue along the U.S.-Mexican border. Growing populations and vulnerable groundwater supplies suggest an urgent need for coordinated, equitable, binational strategies. The report warns that the lack of comprehensive, cooperative management for transboundary groundwater resources may become one of the most pressing challenges of the next century.

News to Use in the
Environmental Synopsis...
share it with a friend

The *Environmental Synopsis* is issued monthly. The newsletter examines timely issues concerning environmental protection and natural resources.

If you or someone you know would like to receive a copy of the *Synopsis* each month, please contact the committee office at 717-787-7570.



PRINTED ON RECYCLED PAPER

One encouraging trend is that, after increasing between 1950 and 1980, water withdrawals for offstream use in the United States declined between 1980 and 1995. Although demand for irrigation water is high, withdrawals were reduced by the use of better irrigation techniques, increased competition for water, and a downturn in the farm economy. Increased reliance on demand management tools has also resulted in greater efficiency of use. Despite a 16 percent population increase from 1980 to 1995, the United States withdrew two percent less water in 1995 than in 1990, and nearly 10 percent less than in 1980. Total freshwater consumptive use, however, was six percent more in 1995 than during 1990.

A copy of the report is available from the Commission for Environmental Cooperation, 393, rue St-Jaques Quest, Bureau 200, Montreal, Canada H2Y 1N9; telephone: (514)-350-4300. The report is also available at: http://www.cec.org/files/PDF/PUBLICATIONS/soe_en.pdf.

Coal Mine Drainage Report Presents Methods For Predicting and Preventing Pollution

—Jason H. Gross, Research Analyst

Coal mine drainage and the environmental problems that it can cause are familiar issues in many parts of the Commonwealth. The Pennsylvania Department of Environmental Protection (DEP) has released a comprehensive report summarizing and analyzing scientific aspects of coal mine drainage entitled “*Coal Mine Drainage Prediction and Pollution Prevention in Pennsylvania.*”

According to the report, coal mine drainage ranges widely in composition from acidic to alkaline. This varies in conjunction with various concentrations of sulfate, iron, manganese, and aluminum along with more commonly occurring elements such as calcium, sodium, potassium, and magnesium. Altering the concentrations of these minerals in the soil where mine drainage leaches can significantly affect the acidity or alkaline balances of the surrounding soil and water supplies. This in turn can cause dangerous environmental side effects in surrounding groundwater and watersheds.

The report offers details on the scientific forces at work in acid mine drainage (AMD) and how to neutralize it. AMD is formed by the oxidation of pyrite followed by

the oxidation of iron, which then leaches into the soil creating an acid effect in the surrounding soil and water supplies. The acid situation can be effectively mitigated by the introduction of limestone or similar materials that counteract the acidity.

A reliable means of predicting future water quality impact from a potential mine is needed.

According to the report, understanding the groundwater system in a given area, its hydrologic balance and mining’s impact on it is essential to the implementation of effective acid mine remediation and mine monitoring. Establishing an understanding of the specific system also minimizes the costs of monitoring the mine drainage. Because of these underlying conclusions, the report recommends a complete analysis of the groundwater system be performed before any monitoring or remediation efforts are enacted.

An important aspect of the report is the ability to develop a plan by which an area can be mined without an unacceptable risk of pollution. In order to do this, a means of predicting the future water quality impact of a potential mine on a groundwater system is necessary.

Historically there has been much skepticism regarding the ability to predict post-mining water quality in advance of the construction of the mine due to the number of variables and the difficulty in collecting and interpreting them. Because of this, past attempts at predicting post-mining water quality have been relatively limited.

One issue is the lack of information regarding the groundwater system and hydrogeological data regarding the surrounding area. Another issue that challenges post-mining prediction is the assessment of risks regarding a planned mine’s potential to affect water quality. Improved data collection and better determination of the level of risk and acceptable risk associated with a mine are areas that must be explored before a mining operation begins.

To obtain a copy of the 18-chapter report, contact the Pennsylvania Department of Environmental Protection, P.O. Box 2063, Harrisburg, PA 17105-2063, call 717-783-2300 or e-mail DEPINFO@state.pa.us and request the publication: “*Coal Mine Drainage Prediction and Pollution Prevention in Pennsylvania.*”

On The Horizon...

a look at upcoming committee events

► **Monday, May 6, 12 noon, Hearing Room 1, North Office Bldg., Capitol Complex – Environmental Issues Forum.** Consistent with this year's Earth Day theme "Focus on Biodiversity", Sue Thompson, president of the Pennsylvania Biodiversity Partnership, will discuss the partnership's ongoing development of a statewide plan for biodiversity for the Commonwealth.

► **Monday, June 10, 12 noon, Hearing Room 1, North Office Bldg., Capitol Complex – Environmental Issues Forum.** William "Bill" Forrey, with the consulting firm the RBA Group, which has been implementing the PA Greenways Partnership Commission's state Greenways Plan, will discuss the plan's progress and the information clearinghouse being established.

► **Thursday, July 11, 10 a.m., Room 107, Penn Stater Conference Center Hotel, State College – Legislative Forestry Task Force Meeting.** The task force will discuss taxation of forestland in Pennsylvania. ***Individuals planning to attend should contact Lynn in the committee office in advance at 717-787-7570.***

Environmental Issues Forums are open to the public. Please call the committee office at 717-787-7570 if you plan to attend.

Final Reminder

Mailing List Being Updated...Please Respond



Once again, the committee asks your cooperation in helping to update the *Environmental Synopsis* mailing list, as we did last month. We want to be sure that those who wish to receive the *Synopsis* each month are receiving it, and that we remove those that no longer wish to be on the mailing list or have moved on.

If you have not already done so, it is important that you respond to Lynn in the committee office at any one of the numbers/addresses listed below, prior to April 30, 2002, to advise her of your continued interest in receiving the *Synopsis* and to confirm or update your address, or to request removal from the mailing list.

Those who do not respond by the April 30 deadline will be removed from the mailing list.

You may contact Lynn as follows:

- ✓ E-mail at lmash@jcc.legis.state.pa.us;
- ✓ Fax at 717-772-3836; or
- ✓ Telephone at 717-787-7570, ext. 10.



This month's committee Environmental Issues Forum features a presentation by the department on its Environmental Futures Planning Process (EFP2). EFP2 is a dramatic restructuring of the way DEP plans for the future, and represents a performance-based initiative to protect Pennsylvania's environment "watershed by watershed", to use the department's own words. The basis for EFP2 is the building of partnerships with local communities within watershed areas after more than 70 meetings with more than 1,500 people representing local watersheds.

A few months ago, the committee heard about the Keystone Watershed Network, a volunteer effort to monitor the health and resources of the state's watersheds and serve as a central clearinghouse for information. It is a growing network, coordinated by the Pennsylvania Organization for Watersheds and Rivers (POWR).

One of DEP's top legislative priorities, as described at another recent committee forum, is an initiative entitled the Water Resources Conservation and Protection Act, a comprehensive measure to develop a state water plan, monitor water consumption, establish critical water planning areas and set up water conservation and water use efficiency programs.

While the drought was not necessarily the initial impetus behind such legislation, it is certainly lending momentum to efforts to conserve water and plan for future water use.

Due to the continuing dry conditions and the mild winter across much of the state, groundwater levels have dropped and are not being recharged in sufficient quantity to raise water levels. Again, this has serious effects on not just one home with a well or one municipal water supplier, but on entire watersheds.

According to the National Ground Water Association, 33.7 percent of Pennsylvania's population depends on ground water for its drinking water. More than 978,000 Pennsylvania households, representing more than 2.5 million residents, are served by privately owned individual wells. Another 17,477 public supply wells provide water to Pennsylvania communities and nearly 1.5 million Pennsylvanians are served by ground water influenced public water systems.

So remember, we all live in one watershed or another and we all live upstream of someone else who needs water as well. Everyone must do his or her part to conserve water. DEP offers many tips on how to do that, which can be found on the department's Drought Information Center on the Internet.

Each of us must also do our parts to protect and preserve Pennsylvania's watersheds, because they impact upon the well-being, livability and growth of our communities, on prospects for job growth and the potential for economic vitality, and on recreation opportunities and environmental health. Watersheds truly are "crucially important" for all of us.

**Check out DEP's Drought
Information Center at
[www.dep.state.pa.us.us/dep/
subject/hotopics/drought](http://www.dep.state.pa.us.us/dep/subject/hotopics/drought)**

How to Contact The Joint Conservation Committee

Phone: 717-787-7570

Fax: 717-772-3836

Location: Rm. 408, Finance Bldg.

Mail: Joint Conservation Committee/PA House of Representatives/House Box 202254/Harrisburg, PA 17120-2254