



The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman

The committee recently completed a series of visits to Pennsylvania's heritage regions. Over the past year and a half, committee members and staff toured sites in all 11 of the regions comprising the state's Pennsylvania Heritage Parks Program (PHPP), administered by the Pennsylvania Department of Conservation and Natural Resources (DCNR). It was an educational and entertaining series of expeditions that took us to all corners of the Commonwealth, and well worth it.

What we saw and experienced affected and impressed each of us in different ways, but upon reflection, there are some truisms. The first is that heritage and its nurturing and development is important. The dictionary defines heritage in part as "valued objects and qualities..." All of us who visited the regions agree, I think, that the sites are gems, often raw and undiscovered, but priceless gems nonetheless. In addition, the very concept of preserving and enhancing heritage has intrinsic value in and of itself. Whether you are an historian, an engineer intrigued by the way things work, a naturalist, a sociologist, an artist or a tourist, heritage is an authentic attraction and heritage-related sites are to be valued.

The committee was excited by the partnerships being built in all of the heritage regions.

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Craig D. Brooks, Director

Many small towns in Pennsylvania have aging wastewater collection systems that are deteriorating or are in desperate need of repair. Some older towns still use brick sewers built more than a century ago, while many more rely on outdated combined systems to collect both wastewater and storm water flows. When communities fail to adequately invest in the upkeep of their wastewater collection systems, the problems that result can threaten public health and the environment. More often than not, the problems tend to be far more expensive to correct than to prevent. Infiltration and inflow (I & I) are two such problems affecting large and small collection systems in Pennsylvania. Infiltration of groundwater into sewer systems has caused manholes to overflow and treatment facilities to discharge raw sewage directly into waterways. In addition, addressing illegal downspout connections and footer drains have created costly solutions.

In cooperation with DEP, the Joint Committee, along with the 3 Rivers Wet Weather Demonstration Program and the Pennsylvania Utility Contractors Association (PUCA) co-sponsored a technical symposium on addressing I & I problems in municipal sewer systems. Over 230 participants, including contractors, engineers, consultants, and local, state and federal government representatives attended the two-day symposium. The symposium focused on many of the recommendations offered by the Joint Committee's Legislative Infiltration Task Force report issued in February 2002.

Participants at the I & I Symposium pose for a photo. Pictured left to right are committee Executive Director Craig Brooks, committee chairman and keynote speaker Rep. Scott Hutchinson, DEP Secretary Dave Hess; committee vice-chairman Sen. Raphael Musto and DEP symposium coordinator Peter Slack.

Among the many highlights, several common themes emerged: regionalization of wastewater systems; managing current assets and developing plans for future asset management; promoting wastewater initiatives through education; and creating a dedicated source of funding.

It has become clear that the escalating demand for sufficient water and wastewater infrastructure and the adequacy of wastewater treatment and disposal have emerged as crucial economic development issues. In some areas, the problem is availability. New development stretches existing infrastructure resources, and land use policies are often out of sync with meeting the demands for water and wastewater infrastructure. Meanwhile, crumbling infrastructure in older communities threatens water quality and limits economic development that brings jobs to the state and revitalizes cities and towns.

One thing is for sure...meeting the wastewater infrastructure needs in the state will cost billions of dollars, and providing clean and safe water and creating the necessary infrastructure to support development are key factors in Pennsylvania's future.





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.

Cruising for a Clean Environment: Reducing Cruise Ship Pollution

— Tony M. Guerrieri, Research Analyst

Luxury cruise ships that boast restaurants, swimming pools, 1,300-person theaters, and an array of shops, stores, and entertainment facilities, are leaving a trail of waste water in their wakes. According to a report by the Ocean Conservancy, massive vacation liners are dumping sewage and other discharges in and around delicate marine environments, harming the very waters they are touring.

The report, "*Cruise Control: How Cruise Ships Affect the Marine Environment*", highlights the issues of pollution, and unregulated discharges from cruise ships, and suggests solutions that will protect marine resources. The report argues that cruise ships should be regulated by the same standards as land-based industries. Cruise ships can carry up to 5,000 passengers - the population of many municipalities - and yet they are not governed by the same anti-pollution laws as their landlubber counterparts.

Current law allows ships to dump wastewater and treated sewage virtually anywhere. Sewage from cruise ships is regulated under the federal Clean Water Act, but only within the state territorial limit of three miles.

The report compares wastewater discharges from Haines, Alaska, with a population of 1,325, and a large cruise ship. Although both the city and the cruise ship released 300,000 gallons of wastewater per day, the cruise ship was not required to test for a variety of pollutants including metals, ammonia, and coliform bacteria. Cruise ships operating in Alaska waters were also exempt from monitoring and reporting wastewater discharges until the

state enacted a law in July 2001 requiring the additional measures. Alaska is the only state to require such monitoring.

Ships generate sewage, solid waste, oily bilge water, air pollution from diesel engines, and other pollutants, and burn large volumes of trash onboard. The pollution generated in one day by one large ship can include 37,000 gallons of oily bilge water, 30,000 gallons of sewage, 255,000 gallons of non-sewage graywater from showers, sinks, laundries, baths and galleys, 15 gallons of toxic chemicals from photo processing and dry cleaning solutions, tens of thousands of gallons of ballast water containing pathogens and invasive species from foreign ports, seven tons of garbage and solid waste, and air pollution from diesel engines at a level equal to thousands of automobiles.

Cruise ship impacts have increased as the industry has grown. In 1998, 223 cruise ships carried ten million passengers through some of the world's most sensitive ocean ecosystems. Since then, the industry has grown by an average of ten percent each year, and is expected to bring more than 49 new vessels into service by 2005.

The new larger cruise ships are over 1,000 feet long and carry more than 5,000 passengers and crew. The largest, at 1,017 feet long, is larger than the U.S. Navy's largest aircraft carrier and has its own zip code.

The report recommends a series of government actions, including:

- regulating all cruise ship discharges;
- amending the Clean Water Act to prevent discharges of raw sewage and toxic chemicals;
- requiring the U.S. Environmental Protection Agency (EPA) to develop effluent limits, stronger air emission limits, and mandatory ballast water treatment programs;
- establishing and enforcing no discharge zones to reduce the impact of cruise ship pollution

on special ocean sites; and

- increasing funding for the EPA and U.S. Coast Guard, including aerial surveys and surprise inspections.

A copy of the report, “*Cruise Control: How Cruise Ships Affect the Marine Environment*”, may be found at the Ocean Conservancy’s website at <http://www.oceanconservancy.org/dynamic/aboutUs/publications/cruiseControl.pdf>

U.S. Exceeds Canada In Important Environmental Indicators – Even Without Kyoto

— Jason H. Gross, Research Analyst

It is important to compare the U.S. national environmental outlook to what is occurring in other countries. At September 4th’s World Summit on Sustainable Development, a global environment meeting, Secretary of State Colin Powell was heckled by protestors angry with U.S. environmental policy and our non-acceptance of the Kyoto protocols on greenhouse gases (GHG). Frequently U.S. policy is ridiculed for its position on GHG, which raises the following question. Is our policy actually detrimental to GHG reduction? Answering this question provides a global perspective as well as an understanding of our own progress in the climate change arena.

A recent report released by The World Wildlife Federation and The Pembina Institute entitled “*A Comparison of Current Government Action on Climate Change in the U.S. and Canada*” provides a reference of comparison between the U.S. GHG policy and Canada’s.

The report compares state and local governments in the United States to provincial governments in Canada. The report makes the point that even though the federal government in the U.S. has not ratified the Kyoto protocols, local governments, using federal incentive programs, have done the job of reducing emissions. According to the report, state governments in the U.S. have taken far more significant actions toward reducing GHG emissions than the equivalent provincial governments in Canada.

In all or most of the most significant measures impacting GHG emission reductions, Canada lags behind the U.S.

Adopting a realistic reduction target is impor-

tant for creating action and molding policy toward effectively reducing GHG emissions. For instance, in New Jersey the target reduction is 3.5% of the 1990 levels by 2005. Other areas have similar goals. Canada, by contrast, has no such targeted goals on a provincial level. Their long-term goals are far less specific and immediate, speaking to generally reducing GHG sufficiently to reduce any dangerous threat.

According to the report, significant progress can be made by increasing the use of low-impact renewable electricity. By increasing the percentage use of renewable electricity, a high level of increased environmental cleanliness can come from emissions reductions at a relatively modest cost. The report goes on to state that the U.S. Senate directly approves a portfolio of renewable plans and policies. Wind energy production tax credit programs exist to create incentives for the use of renewable energy. In California, Massachusetts and other states there is government funding of renewable energy installations. By comparison, Canada has a far weaker incentive program and less support for renewable energy generators. At best the provinces have only low-level voluntary commitments made by government utilities. Financial incentives based on U.S. programs are only now being considered in Canada.

Another method to reduce GHG emissions is to lessen the total number of vehicles on the road. One way to do this is for government to assist in funding for public and mass transit. Since cars and trucks are responsible for most GHG emissions, this method is particularly effective. On the U.S. federal level there is funding for public transit and tax exemption for transit benefits. Other states invest and subsidize mass transit on other levels. The Canadian federal government has provided no funding for transit in recent years. As a result Canada lags far behind U.S. efforts to reduce emissions generated by trucks and automobiles.

The report reveals that there are no categories in which Canada is ahead of the U.S. in emissions efforts or accomplishments. This despite the fact that the U.S. does not subscribe to the Kyoto protocols and is often attacked for not doing so.

Even in the absence of a binding international commitment, the U.S. has exceeded the GHG reductions of Canada, a participant in the Kyoto treaty and often considered a bastion of environmental protection. For copies of the report please go to the following World Wide Web address: http://www.pembina.org/pdf/publications/reportcard_020517.pdf

5 How Much Energy Does it Take to Make a Gallon of Ethanol?

— Tony M. Guerrieri, Research Analyst

Ethanol is the primary renewable energy source being used in the U.S. transportation sector today. More than 15 percent of U.S. motor fuels contain ethanol. It was first utilized as an additive to gasoline during the energy crisis of the 1970s. In the mid-1980s, ethanol began to see widespread use as a source of octane. However, ethanol's use as an oxygenate increased substantially with the passage of the federal Clean Air Act Amendments of 1990, which require the addition of oxygenates to gasoline in the nation's most polluted areas. Ethanol production in the U.S. grew from a few million gallons in the late 1970s to over 1.7 billion gallons in 2001 due to national security concerns, new gasoline standards, and federal and state incentives. Demand for ethanol could increase further if methyl tertiary butyl ether (MTBE) is eliminated from gasoline.

One of the most controversial issues relating to ethanol is the question of the net energy of ethanol production. Simply put, is more energy used to grow and process the raw material into ethanol than is contained in the ethanol itself?

A report by the U.S. Department of Agriculture (USDA) highlights the energy efficiency of ethanol and its positive role in reducing U.S. dependence on imported oil. According to the report, *"The Energy Balance of Corn Ethanol: An Update"*, published by the USDA's Office of the Chief Economist, ethanol production is an extremely energy efficient process. It concludes that the ratio of energy input to energy output is 1 to 1.34, meaning ethanol contains 34 percent more energy than the energy used in production.

In the report, researchers found a net energy gain of 21,105 British thermal units (BTUs) per gallon. A BTU is the amount of energy needed to raise the temperature of a pound of water by one degree Fahrenheit. A gallon of gasoline contains 125,070 BTUs.

Studies conducted since the late 1970s have estimated the net energy value (NEV) of corn ethanol. According to the report, variations in data and assumptions used among the studies have resulted in a wide range of estimates. One 1991 study cited by the report showed an energy loss of

33,562 BTUs. Five studies conducted since 1995 have concluded ethanol provides a net energy gain.

The USDA report identifies the factors causing this wide variation and develops a more consistent estimate. Estimating the energy input for determining the NEV of corn ethanol involves adding up all the energy required to grow corn and to process it into ethanol. Differences among studies are related to various assumptions about corn yields, ethanol conversion technologies, fertilizer manufacturing efficiency, fertilizer application rates, and the number of energy inputs included in the calculations.

The USDA report suggests that the NEV of corn ethanol has been rising over time due to technological advances in ethanol conversion and increased efficiency in farm production.

Ethanol produces much more energy than it consumes when compared to other products such as petroleum. Moreover, ethanol production uses abundant domestic supplies of energy to convert corn into a premium liquid fuel that can displace petroleum imports.

Only about 17 percent of the energy used to produce ethanol comes from liquid fuels, such as gasoline and diesel fuel. For every one BTU of liquid fuel used to produce ethanol, there is a 6.34 BTU gain, according to the report.

In addition, the increase in ethanol production has stimulated the U.S. agricultural economy because most ethanol is made from corn, and the boost in ethanol demand has created a significant new market for corn.

For more information and a copy of the full report please go to: http://www.ncga.com/ethanol/pdfs/usda_ethanol_report.pdf

News to Use in the
Environmental Synopsis...
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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.



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EPA Report Details Agency Goals and Achievements

— Jason H. Gross, Research Analyst

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Each year the U.S. Environmental Protection Agency (EPA) publishes a fiscal year report that summarizes the past year's activities, states the goals for the future, and restates its continuing mission and objectives.

Most of the areas highlighted by the 2001 Fiscal Year report are the areas of environmental accomplishments attained by the EPA. Under the EPA's clean air goals, for example, air quality was improved and has resulted in reduced acid rain, less toxic air pollution, and lower sulfur dioxide and nitrogen oxide emissions. According to the report, all areas of the country are currently in attainment for nitrogen oxide, compared to 1990. These results are due to far-reaching rules that dramatically reduced pollution. Continuing in this vein, the EPA issued stricter rules in 2001 on heavy-duty trucks and buses and cut sulfur levels in diesel fuel. As a result, these vehicles will be 90% cleaner than current trucks and buses, resulting in an annual reduction of 2.6 million tons of nitrogen oxide by 2030.

Water quality was another priority for the EPA in 2001. The EPA identified waterway and drinking water health as areas that need improvement in future years. The EPA states that the national rivers, lakes, and wetlands must be made healthy and aquatic ecosystems must be protected and restored. In order to do this, the EPA is moving toward doing more research work and funding of programs which create environmentally safe aquatic habitat and water resources.

According to the EPA, the voluntary Energy Star program increased penetration of energy-efficient products into the marketplace. This was done through voluntary programs for manufacturers, and through a certification process, to participate in receiving the Energy Star label by producing efficient products. These products then in turn receive a marketing boost by being identified as more environmentally efficient than other similar products. According to the EPA, the Energy Star program saved consumers more than \$8 billion in energy bills and more than 74 billion in kilowatt-hours. These efforts also reduced NOx emissions by 160,000 tons.

The EPA indicates a number of long standing issues that will continue to be challenges in the future. According to the report, the future environmental outlook will be characterized by increased rates of change and greater uncertainty about the responses of complex ecological, social, and political systems.

Population growth and the environmental effects of increased consumption will continue to be an issue into the future. According to the report, the world's population will grow by nearly 2 billion people in the next 25 years, creating an enormous global environmental burden. Domestic growth will pose a major water management and infrastructure problem. As the population continues to grow, general environmental concerns will grow exponentially through increased demand for transportation, increased emissions, and consumption.

Increased rates of change, population growth and the effects of increased consumption are among challenges in the future, according to EPA.

The EPA must analyze all these areas in an effort to develop ways of meeting the demanding issues of the future. In order to do this the EPA must create new partnerships with other federal and state agencies, other governments and non-government organizations. These policy and political efforts must be combined with technological efforts and incentive programs to help reduce pollution and emissions. The agency will attempt to employ innovative approaches and science in order to investigate solutions to interdisciplinary environmental issues. On the consumption issue, for example, the EPA will attempt to create incentives to reduce pollution by lower emission vehicles, closed loop manufacturing, and consumer level recycling and recycled product reuse.

For copies of the report please visit the World Wide Web at: <http://www.epa.gov/ocfo/finstatement/2001ar/ar01.pdf> or <http://www.epa.gov/ocfo/finstatement/2001ar/2001ar.htm>.

On The Horizon...

a look at upcoming committee events

► **Tuesday, October 8, 8:30 a.m., Hearing Room 1, North Office Bldg., Capitol Complex – Environmental Issues Forum.** Ken Manno, Program Manager for the Sustainable Forestry Initiative (SFI) in Pennsylvania, and an executive from International Paper’s Forest Resources Division will provide an overview of the initiative, describe what the SFI is doing in Pennsylvania, and discuss the practical application of SFI.

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

Committee Chronicles...

a review of some memorable committee events

Scenes from the committee’s recent visit to the Endless Mountains Heritage Region and Lackawanna Heritage Valley.

Committee Executive Director Craig Brooks gets ready to try his hand at operating the steam engine at the national park at Steamtown in the Lackawanna Heritage Valley.



Rep. Major, Rep. Hutchinson and committee and DCNR staff look over an Endless Mountains vista from the Wyalusing Rocks.



Committee members and staff prepare for a journey underground at the Lackawanna Coal Mine in Scranton. Joining the tour guide (center) are (l. to r.): John Castelli of Rep. Tom Petrone’s staff; Rep. Petrone, a committee member; committee member Rep. Dave Argall; and committee chair Rep. Scott Hutchinson.

The regions' managers have obviously reached out to their respective communities in order to move forward. The partnerships the managers have built, both private and public, have brought in much-needed investment, invaluable expertise and volunteer labor. Teamwork has also given communities a sense of ownership and reasons to embrace heritage development. From a refurbished little theater in Tunkhannock helping to spur a downtown renaissance, to a heavily used walking trail in Pottstown, to a trolley museum and trolley rides in Scranton, to the Carnegie Museum in downtown Pittsburgh, the committee saw dynamic partnerships and met many wonderful partners helping to spur growth in heritage regions.

It also quickly became obvious that the heritage region managers had a true love for what they were doing, believed deeply in the program and were dedicated to making it work. In some cases, there were paid staff to help, but in many of the regions, the managers had to wear many different hats, be in many different places (sometimes at once), handle many different problems and rely on volunteers. Their motivation for doing so was not profit but a real affection for their regions and a desire to see communities preserved, refurbished and growing.

Heritage regions are unique and yet linked by the commonality of heritage. The term "heritage park" is a misnomer. Unlike a state park in which amenities and attractions are fairly standard – campsites, woods, trails, a lake and the like – heritage parks are conspicuous by their differences. Some – the Schuylkill River and Delaware and Lehigh regions, for example, are centered around river corridors. Some – Lincoln Highway and National Road – have a transportation theme. Some – the Lumber Region and Endless Mountains – are rural or agricultural in nature, while others –

Oil Heritage and Allegheny Ridge - combine small towns with industrial history and rustic locations. Still others - Rivers of Steel, Lancaster-York and the Lackawanna Heritage Valley - find their focus in urban landscapes. Some are long and narrow, others compact, and still others cover broad multi-county swaths of land.

Regardless of their differences - a characteristic that makes heritage regions coincidentally more attractive but also more difficult to picture - all 11 regions have much in common. All seek to tell the story of Pennsylvania's industrial history, whether it be coal, railroads, steel or lumber, to cite a few.

Check out the award-winning heritage regions website at www.paheritageregions.com

All offer a wealth of natural, cultural, recreational and scenic resources. All seek to enhance the Pennsylvania tourism experience, stimulate community and economic development, educate visitors and residents alike, and protect and preserve natural resources and historical and cultural assets.

What the committee found only strengthened our belief that the state needs to do more to help heritage regions to grow and flourish. With the committee's help, funding for heritage and other parks was increased from \$4.35 million to \$5.45 million in the 2002-2003 budget. That is a positive step, but still a minimal investment in such a unique set of regional gems. Managers, local communities and diverse regions have made a commitment to telling Pennsylvania's heritage story, and the state and federal governments need to make a greater commitment of resources to be partners in the storytelling.

How to Contact The Joint Conservation Committee

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