



The Chairman's Corner

Rep. Scott E. Hutchinson, Chairman

Last month I devoted much of the column to the results of the first half of Mansfield University's *The Public Mind* survey. You may recall the committee once again sponsored several questions as part of the annual statewide telephone survey, dealing with water, sewer and septic systems, recycling, trash disposal and the drought.

The results of half of the survey were summarized on pages five and six of last month's newsletter, and the other half is found there this month. Last month's column only brushed briefly on the second half of the survey, and I would like to note in more detail some interesting points about the survey results.

**See pages 5 and 6 of this issue for details
on Part II of *The Public Mind* survey results**

Questions about the state's drought situation brought what might be called a good news, bad news response. The good news: when the state issues a drought warning, 86.4 percent of Pennsylvanians respond by reducing their water use. The bad news: at least some Pennsylvanians appear to be unaware their area is under drought restrictions.

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Notes From the Director

Craig D. Brooks, Director

Who Moved My Cheese? - a light-hearted look at how we respond to change - uses mice to represent characteristics that people display when faced with things new and different. This month marks the launch of the committee's new Internet website and when you type <http://jcc.legis.state.pa.us> on the address bar on your web browser you may be asking yourself, "Who Moved My Cheese?"

During the past several months, the staff has spent a great deal of time assessing and developing web processes, site content, and information delivery mechanisms. We are excited and pleased to provide you with what we believe is a robust online journal that matches the level of quality that you've come to expect from JCC.

Committee launches new Internet website

Visit us at <http://jcc.legis.state.pa.us>

You'll now be able to access the committee's newsletter, the *Environmental Synopsis*, from our website, and view archived issues as well. The website also contains information regarding current committee activities, reports, and our popular Environmental Issues Forums. Take a look at our *Links* page where you'll find a range of sites that identify global (GEO-3 Global Environment Outlook), national (National Fuel Cell Research Center), regional (Chesapeake Bay Program), state (PA Powerport) and local (Oil City, PA Business, Commerce & Links) issues and perspectives.

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.

One of our primary goals in creating this new website was to make information more available to our readers as well as those who may wish to contact the committee or utilize our resources. We hope that has been accomplished. Please visit the website and send us your comments about what's posted as well as possible suggestions to improve the site.

Fuel cells are being hailed as the next big thing. They'll power our cell phones, our cars, and possibly our homes and businesses. As pressure for new energy resources increases and the world looks beyond traditional sources of energy, interest in fuel cells is picking up steam. As a likely alternative to fossil fuels, fuel cells are moving out of the laboratories and into the mainstream. They already power all sorts of prototype vehicles and various cogeneration facilities around the world. Currently, all three Detroit automakers - General Motors, Ford, and DaimlerChrysler offer concept cars and plan to introduce fuel cell powered vehicles in the near future.

Next Green Paper will focus on fuel cell technology and be available this month

While the basic technology behind fuel cells is over 100 years old, more than \$1 billion has been spent on their development in the past decade. Fuel cells are expected to reach a point where they will soon offer a highly efficient power technology option for the electric production industry and provide low cost electricity to consumers, as well as protect the environment.

Fuel cells are an environmentally clean, quiet, and efficient method for generating electricity and heat from natural gas and other fuels. With fuel cells set to become the source of power from everything from your phone to your automobile, look for the committee's next *Green Paper: Fuel Cell Technology* to be issued this month.



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.

Report Shows Dental Fillings Among Largest Sources of Mercury

- Tony M. Guerrieri, Research Analyst

As attention continues to be focused on mercury and its detrimental effects on human health and the environment, proper disposal of mercury-based dental amalgam has stepped into the spotlight. According to a report by a consortium of environmental groups, dentists are the single largest source of mercury pollution to the nation's wastewater treatment plants. The report, *"Dentist the Menace? The Uncontrolled Release of Dental Mercury"*, examines the environmental impacts of the dental industry's use of mercury.

Mercury is a unique element that has many uses in the health care industry. For the past 150 years, dentists have used an amalgam of mercury, silver, tin, copper, and zinc to fill teeth – with mercury comprising around 50 percent of the amalgam material. Despite the existence of non-mercury fillings, most dentists still use mercury-based amalgam, citing its ease of use, relatively low cost, and known performance.

Since the 1980's, the tonnage of mercury for dental use has declined slightly due to the changeover from elemental mercury to pre-packaged dental amalgam capsules and the increasing use of non-mercury fillings. But, the percentage of total mercury used by dentists has increased significantly due to voluntary phase-outs and controls imposed on other industries. According to the report, the dental industry used 41 tons of mercury in 1999 and 44 tons in 2001 compared to 50 tons in 1985. However, the 44 tons used in 2001 represents 22 percent of the total 220 tons of mercury used last year compared to three percent of the total 1,718 tons used in 1985.

In 1985, dentists were about the sixth-largest user of mercury, behind batteries and factories that used it to produce chlorine, paint, and measuring instruments. Now, with mercury being banned in many products, the dental

industry has become the third largest user of mercury, behind producers of wiring and electrical switches that use mercury, and certain chlorine manufacturers.

Dentists generate a lot of mercury waste in the routine process of drilling out old mercury amalgam fillings. The largest single source of dental mercury released into the environment comes from the removal of existing amalgams from patients during dental procedures. Approximately 100 million amalgams are placed in patients each year by 175,000 dentists in the United States. Around 70 percent of these are replacement fillings.

Dental offices have filters for trapping the amalgam waste, but only separators capture the smallest particles. Often, the extracted amalgam materials are placed in the trash that is disposed of in municipal landfills or incinerators, deposited in bio-waste containers for incineration, or rinsed down the drain – usually to a municipal wastewater system where it can build up in sewage sludge. It is estimated that when an amalgam is prepared for a filling, 10 percent is left over and is often simply discarded.

Studies by the U.S. Environmental Protection Agency (EPA) show that most municipal wastewater treatment plants have high levels of mercury with significant contributions from dental clinics. Another study cited by the report states that dentists were identified as the largest single source of the mercury that ends up at wastewater treatment plants, accounting on average for 40 percent of the load, more than three times the next largest source.

Currently there are no EPA regulations restricting the discharge of mercury down the drain at dental offices, like there are for manufacturing. Several state legislatures have passed bills which first restrict and subsequently ban the use of mercury in most batteries, and impose disposal bans on other products. In May 2002, the New Hampshire legislature passed first-in-the-nation legislation requiring rules for dentists to trap their mercury. Legislation passed by the Connecticut legislature in 2002 requires vocational dental education or training schools to develop and implement a plan that assures best management practices are used to prevent discharge of mercury into the environment, and to properly manage and recycle elemental mercury and amalgam.



The report offers a number of recommendations including the prohibition of disposal of dental amalgam into all waste streams, and requirements that all dental mercury should be trapped, collected, and recycled. In addition, the report recommends that policies be adopted to foster the reduced use and release of dental mercury through a combination of voluntary incentives, technical assistance, and mandatory requirements to encourage dentists to adhere to stringent best management practices to control the discharge of mercury.

Six environmental groups – Clean Water Action, Sierra Club, Health Care Without Harm, Mercury Policy Project, Natural Resources Council of Maine, and Toxics Action Center – contributed to the report. Copies of the report are available from the Health Care Without Harm website at: http://www.noharm.org/library/docs/Dentist_the_Menace.pdf.

EPA Report Examines Climate Change

—Jason H. Gross, Research Analyst

Recently the U.S. Environmental Protection Agency (EPA) released a report entitled “*The U.S. Climate Action Report 2002*.” The report was prepared at the direction of the Bush administration as part of its review of U.S. climate change policy. The goals of the report are: to be consistent with the goal of stabilizing greenhouse gas concentrations in the atmosphere; be sufficiently flexible to allow for new findings; support continued economic growth and prosperity; provide market-based incentives; incorporate technological advances; and promote global participation.

In addition to formally describing the national circumstances regarding policies and trends in greenhouse gas emissions, the report also outlines expected impacts and adaptation measures and provides information on financial resources, technology transfer, research, and scientific observations.

According to the report, greenhouse gases are accumulating in the earth’s atmosphere as a result of human activity. This conclusion is not as simple as it seems. For a long period of time the belief existed that climate change could be the result of natural causes. While this is technically true, scientists have recently found that in the current situation, human activity is to blame for the climate change we are experiencing. Climate change is taking the form of increased global mean surface air temperature and higher subsurface ocean temperatures. Although natural variability can account for these changes, the rate of the changes we are currently

experiencing can only be a result of human activity.

One of the main barriers to a scientific understanding of climate change is the wide range of uncertainty in making predictions. Predictions are made based on a model. Data is collected and then inserted in the model in such a way that a prediction of the future and explanation of the present climate change can be derived. If the model itself is not a good one, then even with good data the results will be incorrect. According to the report, modeling advances have increased our understanding of the factors that determine atmospheric concentrations of greenhouse gases and aerosols.

The accumulation of greenhouse gases in our atmosphere is a result of human activity

As models continue to improve, and more information is acquired, uncertainties regarding the following climate change issues can be examined and more exacting projections made:

- the future use of fossil fuels and methane emissions;
- the amount of future fossil fuel carbon that persists in the atmosphere and provides radiative forcing;
- feedbacks in the climate system that determine the magnitude and rate of energy uptake by the ocean;
- impacts of climate change on national, regional, and local levels; and
- the nature and causes of natural variability of climate and how they interact with anthropogenic sources of climate change.

According to the report, the national climate change circumstances of the United States are created in part by the country’s strong economic growth. The U. S. is the world’s largest consumer of energy as well as the world’s largest producer. Due to our significant coal, natural gas, and oil reserves, the United States is particularly suited toward energy production. In order to reduce our emissions and reduce our impact on climate change we must increase our percentage use of efficient and renewable energy sources.

Among the report’s recommended changes: improved energy efficiency for vehicles, buildings, appliances, and industry; and the development of hydrogen fuel cells and renewable technologies. The report indicates that if these changes to our energy usage structure are made the climate change impact of the United States will be reduced.

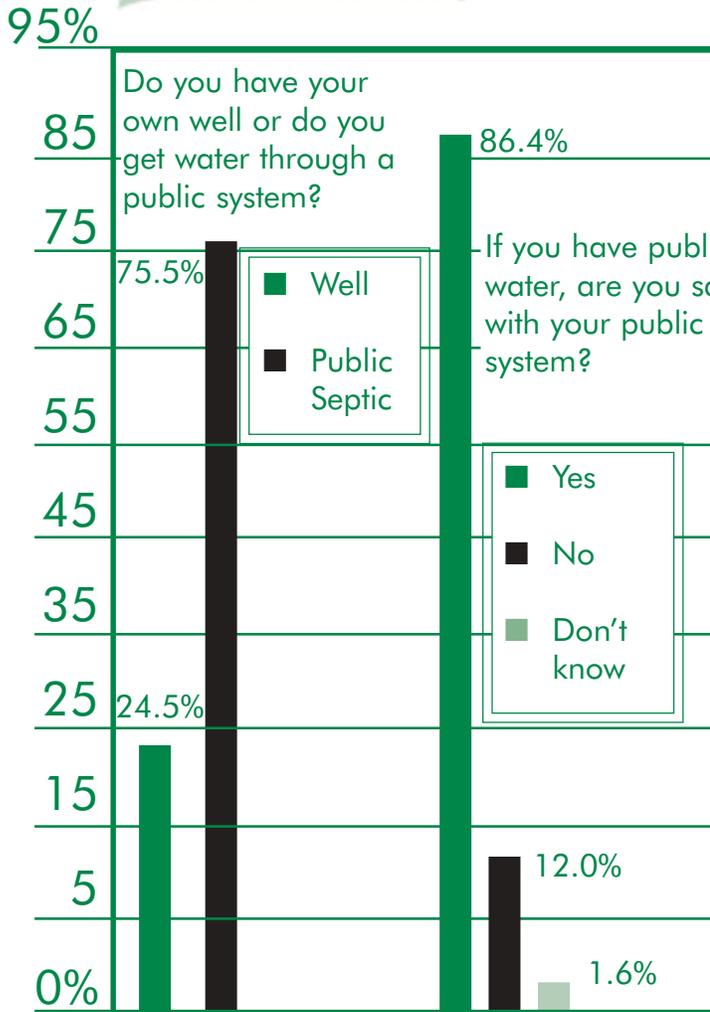
For full copies of the report please visit the EPA website at: <http://www.epa.gov/globalwarming/publications/car/index.html>.



Survey Results

The Public Mind 2002

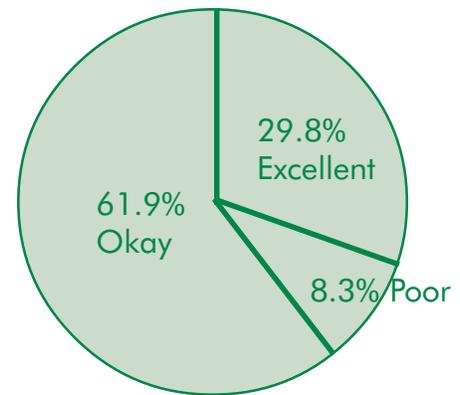
Part II



Water Questions

The survey shows that most Pennsylvanians are hooked up to a public water system and are satisfied with the service and quality of their systems. Those that have wells, however, would like to keep them.

If on public water, how would you rate your water?



If you have a well, has your well gone dry over the past three years?
 No: - 90.7% Yes: - 9.3%

If on a well, within the past year has the water been tested to be sure it is safe?
 Yes - 49.3% No - 44.3% Don't know - 6.5%

If yes, did you find it was safe to drink?
 Yes - 87.3% No - 6.8% Don't know - 5.9%

If on a well, would you prefer to get hooked up to a public water supply?
 Yes - 16.5% No - 79.3% Don't know - 4.2%

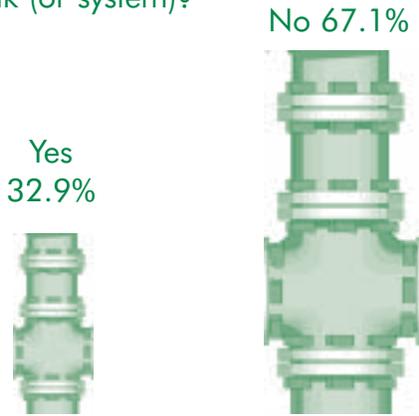
In your home do you use a water filter?
 Yes - 34.1% No - 65.9%



Septic System Questions

Once again, most respondents are hooked up to public sewage systems and are satisfied with the systems' performance. Of those with a septic system, roughly two-thirds have had their systems serviced within the past five years.

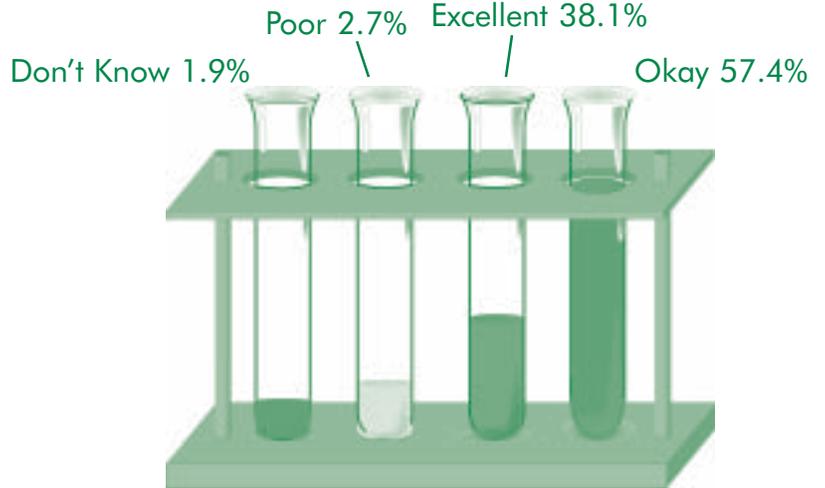
Does your household have a septic tank (or system)?



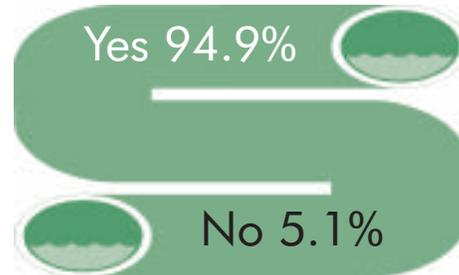
If yes, how long ago was it serviced?
 Within the last year – 34.7%
 Within the last 2-5 years – 31.3%
 More than 5 years ago – 15.2%
 Never – 6.3%
 Don't know – 12.5%

If on a septic system, would you prefer to be hooked to a public sewage system?
 Yes – 33.7% No – 66.3%

If on a public system, how would you rate your public sewage treatment system?



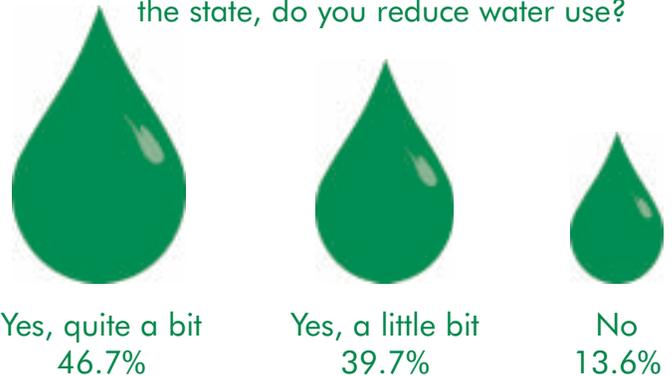
If on a public system, are you satisfied with your public sewage treatment system?



Drought Questions

According to the survey results, most Pennsylvanians try to save water when their communities find themselves subjects of drought warnings. When comparing the overall results to geographic cross tabulations, however, there appears to be some confusion on the part of residents as to whether their area is under drought restrictions.

When a drought warning is issued by the state, do you reduce water use?



Is your area currently under a drought warning?
 Yes – 44.1% No – 46.0% Don't Know – 9.9%

On The Horizon...

a look at upcoming committee events

► **August 20-21, Clarion Hotel and Convention Center, 1700 Harrisburg Pike, Carlisle – Infiltration and Inflow Control Symposium.** The PA Department of Environmental Protection (DEP) and the Joint Conservation Committee are cosponsoring this symposium focusing on infiltration of ground-water into sanitary sewers. It will feature presentations on practical solutions implemented by local governments, contractors and consultants, provide displays by technology exhibitors and focus on many of the recommendations of the Joint Conservation Committee's Infiltration Task Force report. Booklets describing the symposium are available from the committee. Call Tom Franklin at (717) 787-3481 with questions.

**Watch future issues for the fall schedule of Environmental Issues Forums.
The forums are open to the public.**



Penn State Names New Director for School of Forest Resources

Familiar face to fill leadership position

In the May 2002 issue, the *Environmental Synopsis* focused on forestry and Penn State's School of Forest Resources. To follow up on recent events at Penn State, the university recently named a 40-plus years employee, Dr. Charles Strauss, as the new director of the School of Forest Resources.

Dr. Strauss, an award-winning professor of forest economics, had been serving as interim director for 10 months before being named to a three-year term as the school's director. He oversees more than 70 faculty and staff and the school enrolls about 380 undergraduate and 130 graduate students. It is part of the university's College of Agricultural Sciences.

A good friend of the Joint Conservation Committee, Dr. Strauss has been very helpful to the committee's forestry task force. He holds a bachelor's in forest management, masters' degrees in economics and forest products marketing, and a doctorate in agricultural economics. He came to PSU as a forest products extension specialist in 1961, joined the resident faculty as an instructor in 1966, and attained the rank of full professor in 1990.

The school provides teaching, research and cooperative extension and outreach programs in: wood science; forest biology and management; wood products marketing, management and manufacturing; fisheries and wildlife science and management; urban and community forestry; watershed science and management; wetlands ecology; and genetics and systematics.

Congratulations to Dr. Charles "Chuck" Strauss, who is richly deserving of his new position.

(Committee Chronicles will return in this space in the next issue.)



For example, in the Southeast region of the state, 44.3 percent of those responding stated that either their area was not under a drought warning or they did not know.

At the time the survey was being taken, the entire Southeast region was under a drought emergency. The entire region, even today, remains under either a warning or emergency status.

The survey, which has a margin of error of plus or minus two percent, showed that about three-quarters of Pennsylvanians were served by a public water system. And, an overwhelming percentage (86.4 percent) was satisfied with service from their public water supplier. Nearly 30 percent of those with public water rated water quality as excellent and 62 percent as OK. Only a little over eight percent said water quality was poor. Despite this apparent high level of customer satisfaction, most (79.3 percent) of those with wells did not wish to switch to a public water supply.

The region with the lowest level of satisfaction with its public water systems was the Northeast, at 74.8 percent, about 10 percent below the next closest region, the Southeast. While every other region was in single digits (8.5 to 6.3 percent) in giving “poor” ratings to water quality, the Northeast was at 20.2 percent. The most “excellent” ratings were found in the Northwest and Central regions at 35.4 percent each.

The regions with the largest number of public water subscribers were the Southeast and Southwest (82.7 percent and 81.9 percent respectively). The most homes with wells were found in the Northwest and Central regions (34.8 percent and 34.2 percent respectively), while the Northeast was not far behind with 28.5 percent.

Despite the drought, nearly 91 percent of those with wells have not had their wells go dry in the past three years. While only about half (49.3 percent) had had their well water tested in the past year, 87.3 percent of those who had said the water was found safe to drink.

Only about one-third of those responding were on a septic system or tank, a percentage in line with published information from the Pennsylvania Department of Environmental Protection (DEP). The greatest numbers of those on a septic system (44.1 percent) were in the Northwest region, and the lowest (25.2 percent) in the Southeast. Nearly 95 percent of those hooked up to a public sewage system were satisfied with the system’s performance, with 38.1 percent rating the system as excellent and 57.4 percent as OK. Only

2.7 percent were unsatisfied. Once again, however, despite high satisfaction levels, just about two-thirds of those with their own septic systems wanted to

remain there as opposed to being hooked up to a public sewage system.

Servicing of septic systems varied. Close to 35 percent stated their system had been serviced within the last year and another 31 percent within the past 2-5 years. A little over six percent said they had never had their system serviced, just over 15 percent had not had service for more than five years and 12.5 percent were unsure. DEP recommends pumping out a septic tank every three to five years.

The survey results are shared with the General Assembly and agencies of state government, and help to provide useful information on related issues that may come before the Legislature.

**Contact the committee
office for complete survey
result tabulations.**



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How to Contact The Joint Conservation Committee

Phone: 717-787-7570

Fax: 717-772-3836

Location: Rm. 408, Finance Bldg.

Internet Website: <http://jcc.legis.state.pa.us>

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