

**anjec**

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# Director's Report

## The Essential Life Force

Several articles in this issue of the *ANJEC Report* deal with water – improving the conditions of our lakes and streams, upgrading stormwater runoff and assuring the quality of private well water.

Water – the life force – is essential for all living things. As part of the Public Trust Doctrine, the government must hold water and other essential natural resources in trust for the people, assuring that future generations have a clean, ample supply. The 1969 National Environmental Policy Act (NEPA) declares this philosophy stating that, "It is the continuing responsibility of the Federal Government to use all practicable means...to the end that the Nation may fulfill the responsibilities of each generation as trustee of the environment for succeeding generations."

To protect land for future use, planners often use a carrying capacity analysis. They figure how much density an area can support by analyzing factors that would limit population growth. Often, either wastewater treatment capacity or traffic capacity is the limiting factor in the analysis. Usually planners do not use the potential water supply in calculating the carrying capacity, because engineers are able to pipe drinking water long distances, beyond the boundaries of the land area under consideration for capacity analysis.

What we might forget is that when we pipe the water to distant consumers, we are shifting the water supply capacity from the source area to the consuming area. For example, in New Jersey when we pump water from the Highlands to northeastern cities and suburbs, we increase the capacity of the cities to support a large population, but at the same time we decrease the capacity of the Highlands. The circumstances are similar when we pump water out of our major rivers – the Delaware, Raritan, and Passaic – to supply major population centers in the central part of the state; or when we draw water from the Kirkwood-Cohansey aquifer under the Pinelands, to supply Atlantic City and other areas of South Jersey.

**Cover Photo:** "Floating Oak Leaf, NJ Highlands" by Dwight Hiscano, award-winning photographer and author of *New Jersey The Natural State*, a collection of more than 100 color photographs of the state's diverse landscapes. For more information, see [www.dwighthiscano.com](http://www.dwighthiscano.com).

In sending the water elsewhere, we have diminished the capacity of the supply area to support additional growth. We need to remember that we have made withdrawals in the rural areas, in effect we are creating a deficit.

We can keep the water budget balanced as long as we protect the recharge of the supply areas by not paving them over or increasing the amount of local withdrawals. The State Planning Commission has endeavored to do just that through its State Plan map, adopted in 2001. The map delineated the recharge areas mostly as Planning Areas marked Fringe, Environmentally Sensitive or Farmland. The water receiving areas are the Urban and Suburban Planning Areas. Similarly, the Preservation Area of the Pinelands is over the area of major recharge for the aquifer. We must enforce the State Plan and the Pinelands Act so that we preserve areas designated for preservation, and protect areas deemed environmentally sensitive.

Water is the great connector, making the state environmentally one entity. Water supply areas are literally their "brothers' keepers." We cannot forget that we are all upstream from someone else – some person or animal whose life may depend on the water we send them.

*Sandy Batty*  
Executive Director

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**566 MUNICIPALITIES ..... ONE ENVIRONMENT**

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The Association of New Jersey Environmental Commissions is a private, non-profit educational organization serving environmental commission and open space committee members, concerned individuals, non-profits, and local officials. ANJEC's programs aim to promote the public interest in natural resource preservation, sustainable development and reclamation and support environmental commissions and open space committees working with citizens and other non-profit organizations.

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# Protecting Water Quality — in the Highlands (and Elsewhere)

By Lisa Voyce, ANJEC Project Director

*"The rivers and streams of the Highlands, and their headwaters, will continue to provide potable water that maintains natural aquatic ecosystems."*

— 1992 USDA Forest Service

New York-New Jersey Highlands Regional Study

The Highlands is a 1½-million acre physiographic region stretching from northwest Connecticut southeast through the Hudson River Valley, seven counties in northern New Jersey<sup>1</sup> and across the Delaware River into Pennsylvania. Its clean drinking water, recreational opportunities and wildlife habitat are environmentally and economically important for millions of people throughout New Jersey and other states.

Perhaps the greatest gift of the Highlands is its water, which is vital to ecological systems, supports recreation and improves our quality of life. Ten large surface water reservoirs and rivers with headwaters in the Highlands supply water to millions of residents in the NJ-NY-PA area. Local aquifers supply groundwater to Highlands residents. Increased population, economic activity and changes in land cover resulting from development threaten these water resources and all they support.

How does development impact water resources? During construction, bulldozing can increase soil erosion 1,000 fold. The mud from a construction site can damage downstream waters - potentially taking a century to restore. The construction of a large mall in Mount Olive resulted in a ten-mile plume downstream. Heavy equipment used in wetlands and stream channels can permanently alter habitat or create fish migration barriers. Housing development can increase nutrient loads to a stream 12-fold.

As sprawl continues to spread across the Highlands, there is a growing awareness of the need to preserve its natural resources. A 1992 US Department of Agriculture Forest Service report assessed the forest, water, wildlife and recreation resources of the region and outlined the consequences of land use changes and potential conservation techniques.

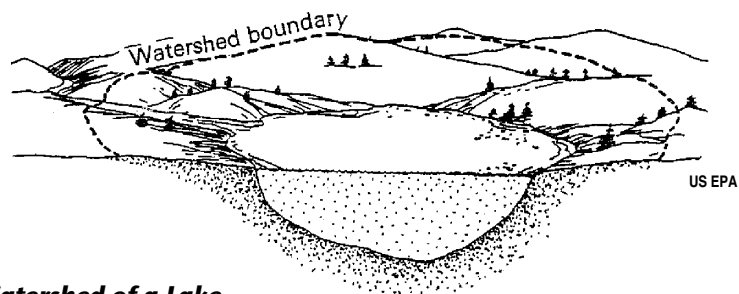
The Forest Service is updating the 1992 Study; the new report includes a build-out analysis and call to action to preserve Highlands resources. As part of its update, the Forest Service financed an ANJEC project to identify critical protection factors for local action, research water quality standards and develop sample natural resource protection ordinances. ANJEC worked with the Mount Olive and Roxbury Environmental Commissions in western Morris County to assess the status of Drakes Brook and the Budd Lake aquifer, two representative ground and surface water resources. We used methods that other commissions can apply in their communities.

Both Drakes Brook and Budd Lake make significant contributions to the headwaters of the Raritan, one of New Jersey's three major rivers. While the localized impacts to these water

resources are severe enough, degradation in these two communities could have far-reaching impacts. Water bodies like these are water and wildlife reservoirs. Protection of their water supply and aquatic habitat is vital to the viability of our economy, and the overall sustainability of human and wildlife.

**Drakes Brook** is a low gradient stream receiving runoff from Route 10, two large shopping malls and other development. Chemical analyses show elevated ammonia, nitrates, phosphorus and suspended sediment. The stream water also showed an elevated temperature and fecal coliform counts exceeded regulatory limits. A 1996 study of the benthic macro-invertebrates (the insects and small crustaceans living on the streambed) also indicated that the stream has a high level of pollution.

Prior assessments also point to substantial environmental degradation. The sediment deposition is so extensive that it has probably destroyed habitat and creates sheen when the water is disturbed. Bed and bank erosion is evident. Nitrate and phosphorus levels are so high that they induce algal blooms, and according to NJDEP standards, make the stream waters unhealthy.



**The Watershed of a Lake**

<sup>1</sup> Parts of Bergen, Passaic, Morris, Passaic, Somerset, Sussex and Hunterdon

**Budd Lake** is the largest natural lake in New Jersey, with local residents dependent on groundwater supplies for their drinking water. It is a 374-acre glacial lake only 7-12 feet deep. It is eutrophic, subject to large algal blooms and classified as non-trout due to its physical and chemical characteristics. Turbidity and bacterial contamination are concerns.

Groundwater seepage from upland sand and gravel terminal moraine recharges the lake, through a series of wetlands. The recharge area for the localized aquifer around Budd Lake overlies the aquifer itself. Paving the land over the aquifer cuts off its infiltrating water. Cutting off the groundwater cuts off groundwater seepage - the major source of water to Budd Lake. Drying up Budd Lake dries up the headwaters of the South Branch of the Raritan River.

### Rapid Stream Assessment Methodology for Drakes Brook

ANJEC completed an assessment of Drakes Brook using a modified Rapid Stream Assessment Technique (RSAT), taken from the Center for Watershed Protection's *Rapid Watershed Planning Handbook* and macro invertebrate data from previous studies. (Similar macro invertebrate studies of other streams may be available from NJDEP.) RSAT evaluates stream health using chemical, biological and physical indicators and provides the baseline data to identify problems in the stream corridor. Mitigating these conditions is key to riparian and watershed improvement efforts. The criteria for assessing the stream include:

- Channel stability - changes in stream flow, stream channel and physical habitat by looking at stream banks, bends, tree roots and plant/soil matrix;
- Channel scouring and deposition - impacts of stormwater runoff, sediment load and habitat degradation by looking at riffles, pools and sediment deposits;
- Physical in-stream habitat - the ability of the stream to support aquatic life by looking at water depth, velocity and temperature;
- Water quality - impacts of human activity, pollution loads and aquatic

habitat conditions by looking at fouling of the rocks, suspended sediments, water clarity and odor;

- Riparian habitat conditions - changes in stream energy, temperature and habitat conditions by looking at stream buffer width, land use and canopy;
- Biological indicators - the type and number of macro invertebrates indicate overall stream health and the level of watershed disturbance.

### Aquifer Assessment for Budd Lake

To assess the aquifer underlying Budd Lake, we reviewed existing studies and conditions. The recharge area for the localized aquifer around Budd Lake overlies the aquifer itself.

Staff did a windshield survey and walking tour of the area, identifying land use patterns and stormwater discharges. We also reviewed Mount Olive's Natural Resource Inventory and a Clean Lakes Phase I Study that documents lake conditions and aquifer contamination. And we looked at carrying capacity and comprehensive planning concepts, including the NJ Geological Survey's 2001 recharge-based nitrate dilution model.

NJGS' nitrate dilution model is a planning tool to be used on a regional basis. It is not an appropriate tool to estimate nitrate concentrations from a particular septic system or to determine septic suitability of a particular tract. Making such determinations should incorporate site-specific hydrological analysis, in conjunction with infrastructure capacity, open space requirements and wildlife impacts. The aquifer assessment methodology recognizes the need to perform site-specific evaluation for septic tank soil adsorption.

Factors in the NJGS nitrate dilution model include the number of household residents, water use per person, impervious cover, municipality (location determines rainfall and recharge), soil type, nitrate concentration in the septic effluent and the target nitrate concentration in ground water. Several of these factors can vary over time. Other assumptions impact the accuracy of the results, which are extremely sensitive to the nitrate target level. Selecting the target should be done carefully.

USEPA's *Lake and Reservoir Restoration Guidance Manual* provides information on the ecological basis for lake management, identifying problems in the lake and watershed, managing pollutant sources and other techniques. It is appropriate to focus on improving lake quality for two reasons. First, the quality of both the water in the lake and the ground water are important indicators of the health of the watershed. Second, the land surface directly above Budd Lake recharges the aquifer. We cannot possibly restore one without restoring the other.

### Drakes Brook Impact Assessment Results

The RSAT uses a point system to rate each factor as excellent, good, fair or poor, with an emphasis on channel stability. We completed assessments at locations where biological data were available from previous macro invertebrate studies. The Roxbury and Mount Olive Environmental Commissions supplied data from a volunteer biomonitoring effort managed by the South Branch Watershed Association. We also analyzed NJDEP biomonitoring data to assure consistency between the official and volunteer results. Results varied greatly along the approximately five-mile stretch of the

### NJ Geophysical Provinces



stream included in this study. The areas with fair quality generally had little or no buffer along the stream, minimal tree canopy, a number of stormwater discharges, dense residential land use and/or commercial use within 200 feet of the stream and 15-20% impervious cover surrounding the stream area.

In contrast, the areas with good ratings had wider vegetated areas near the stream and less impervious cover. However, upstream activities also impacted the assessment results. For example, one area with an extensive open space buffer is downstream from a stormwater outfall and a golf course. Its overall rating was not good.

### **Aquifer Impact Assessment Results - Budd Lake Aquifer**

In the early 1990s Mount Olive received NJDEP approval to extend sewers around Budd Lake that discharge to another watershed. They have since been installed. There is documented contamination of groundwater with phosphorus, nitrates and other contaminants from previously used septic systems in the tightly packed neighborhood surrounding Budd Lake. Stormwater runoff from Route 46 also impacts water quality. Previous studies and our assessment of the Budd Lake Aquifer indicate a need to establish vegetated buffers for riparian and recharge areas, treat stormwater and minimize volumes prior to discharge, limit aquifer withdrawals and protect and restore wetlands. These watershed-based activities will help protect both Budd Lake and the aquifer.

### **Moving from Assessment to Protection**

To live within the carrying capacity of the Highlands region we must manage and preserve its irreplaceable water resources. The following are ways we can protect the waters of the Highlands and elsewhere.

- *Preserve the Base Flow* Strengthen state ground and surface water diversion regulations. Current water allocation regulations are resulting in impacts ranging from dry streambeds to aquifer depletion.
- *Protect Aquifer Recharge Areas* Permeable bedrock or surficial

geologic formation, well-drained soils, moderate slopes, a deep water table and undeveloped land favor recharge. Having the information available to identify and preserve recharge areas is one reason why an environmental resource inventory is so important.

- *Establish Riparian or Stream Corridor Buffers* Riparian buffers absorb rainfall, control erosion and can remove sediments, nutrients and other pollution from stormwater runoff. Buffers help maintain base flow, cool waters in streams and lakes, keep stream banks stable, provide habitat and control flooding. The North Jersey Resource Conservation and Development Council and USDA Natural Resources Conservation Service recommend a 50-foot minimum buffer on both sides of any size stream.

- *Preserve Steep and Moderate Slopes* Protecting slopes helps control sediment and pollutants and keep development away from unsuitable areas. Undisturbed slopes decrease flooding, help preserve stream banks, support groundwater base flows and provide habitat. Research indicates that even moderate slopes of 10-15% deserve protection, as they are often in areas of aquifer recharge.

- *Maintain Forested Headwaters* The springs, snowmelt, lake outlets or other sources where streams, rivers and other surface water bodies begin are very important for downstream water quality. Headwaters often originate in areas of steep slopes. Forests have a major impact on all pollutant levels, with urban streams having one to two orders of magnitude greater pollution than forested watersheds. Forested headwaters help stabilize and enrich soil, slow runoff and erosion and filter water prior to groundwater recharge.

- *Manage Stormwater* Keep stormwater on-site and minimize runoff and discharge. In forested areas, about 50% of the precipitation that falls infiltrates into the ground and only 10% runs off as stormwater. This recharges groundwater and helps to maintain the base flow of streams. It also helps reduce sedimentation, which is key to water quality and a healthy aquatic habitat. Water quality decreases as stormwater volume

increases because more water can carry greater quantities of sediment and pollutants.

- *Minimize Impervious Surfaces* The extent of impervious cover is a major factor in stream temperature increases and aquatic insect and fish biodiversity. Lawns (turf), which dominate urban and suburban areas with 50-70% coverage, are fairly impervious. They also contribute greater chemical and nutrient pollution from fertilizers and pesticides. The indicator level for noticeable impairment of water quality is only 10% impervious cover. That is the equivalent of approximately two-acre residential lots with typical paved areas.

- *Protect Wetlands* The Budd Lake Bog is the single largest contiguous wetlands in Mount Olive. It provides storage for floodwaters, recharge water from the underlying groundwater to the lake, cycles nutrients and provides unique wildlife habitat.

- *Manage Septic Density and Operation* Master plans and health codes that reflect environmental constraints are important to control septic system use and density. Factors identifying watersheds at greater risk from septic include steep slopes and coarse-textured, shallow soils that encourage rapid runoff and limit the biological uptake and retention of nitrate.

### **Approaches to Water Quality Protection**

The US Environmental Protection Agency's *Lake and Reservoir Restoration Guidance Manual* includes "how-to" guidelines for controlling non-point sources of nutrients and pollution and identifying management alternatives that can be implemented at a local level. These are appropriate for aquifer protection as well.

1. Form a lake or watershed association to assure your voices are heard.
2. Identify potential problem sources at home, around the lake and in the watershed to define the extent of problems.
3. Identify critical areas contributing sediments, nutrients and other pollutants. Consider ordinances and zoning regulations to control these sources.

## The Highlands. Our Last Bastion of Wilderness

The Highlands' forested ridges, clean, clear streams, lakes and reservoirs form an irreplaceable greenbelt for the New York metropolitan area. Covering nearly 90 municipalities in seven counties, the Highlands are one of New Jersey's most significant resources.

- Drinking water for tens of millions of residents in New Jersey, New York, Pennsylvania and Connecticut;
- Thousands of acres of unbroken forests;
- Recreation within a two-hour drive for 20 million people; and
- Habitat for trout, black bear, river otters, bobcats, and dozens of species of threatened and endangered plants and animals, as well as 70 species of tropical songbirds that migrate from Central and South America and nest in Highlands' forests.

BUT...sprawl is a serious threat. Eighty percent of the land in the Highlands has no protection and is available for development. From 1995 to 2000 more than 25,000 acres were developed, destroying 3,400 acres of forest and wetlands, quadruple the rate for 1985-1995.

The Highlands Coalition, a group of more than 90 regional, state and local organizations is working hard

with legislators, local officials and citizens' organizations to protect the region's very special resources. ANJEC has been active on the Highlands Coalition since its formation in 1988. Today, executive director Sandy Batty heads the Coalition's four-state Outreach Committee and project director Kim Ball Kaiser the NJ Committee's Local Government Subcommittee.

Here's what you can do to learn more and help protect the Highlands:


- Check out the Highlands Coalition's web site at [www.highlandscoalition.org](http://www.highlandscoalition.org);
- Subscribe to the quarterly newsletter *High Ground* (free) by emailing your name and address to [sdudley@anjec.org](mailto:sdudley@anjec.org);
- Subscribe to the Highlands email list serve for regular updates and alerts by sending a blank message to [join-highlands@gseelist.org](mailto:join-highlands@gseelist.org);
- Contact ANJEC for a copy of the Highlands Coalition's 20-page color booklet, *The Highlands: Our Backyard Paradise* at [info@anjec.org](mailto:info@anjec.org) or 973-539-7547.

If your environmental commission, watershed association, land trust, civic or nonprofit organization is interested in joining the Highlands Coalition, contact ANJEC at [info@anjec.org](mailto:info@anjec.org), or 973-539-7547.

4. Initiate watershed best management practices, such as integrated pest management, erosion control and riparian/recharge area buffers.
5. Determine how to get the most bang for the buck or activity. Use common sense to determine if riparian buffers, controls on fertilizers or other strategies are effective for your particular problems.
6. Investigate regulations and zoning to help resolve problems in the watershed. Land use is a prime determining factor in water quality.

### Natural Resource Protection Ordinances

Drawing from ANJEC's municipal ordinance database with additional research into local laws, ANJEC has assembled sample ordinances to help local government protect water quality in the Highlands. They include riparian buffer, steep slope, septic, stormwater and other natural resource protection ordinances.

Copies of the complete Technical Report "Setting Standards for Water Quality Protection in the Highlands" that includes additional critical factors and the sample ordinances are available from the ANJEC Resource Center at 973-539-7547 or [resourcecenter@anjec.org](mailto:resourcecenter@anjec.org). 

# New EPA Stormwater Regulations

By Abigail Fair, ANJEC Project Director

**T**he NJ Department of Environmental Protection (DEP) is drafting regulations to implement the US Environmental Protection Agency (EPA) Phase II stormwater requirements to address pollutants from storm drainage systems owned or operated by local, state or

federal government agencies. In general, this means the regulations will apply to municipalities, counties, large public complexes and highway agencies. The Phase I regulations, which went into effect in 1993, applied only to certain industries; they required measures to

prevent industrial pollutants from entering storm drainage systems.

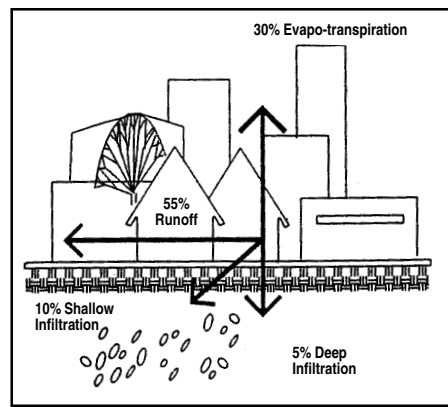
The Phase II regulations will require the designated public entities to submit a Request for Authorization (RFA) for a New Jersey Pollutant Discharge Elimination System permit

by next spring or a month after the regulations are adopted. NJDEP is planning to send the RFAs this fall. Once NJDEP accepts an RFA, the applicant will have five years to complete a Stormwater Management Program in its jurisdiction.

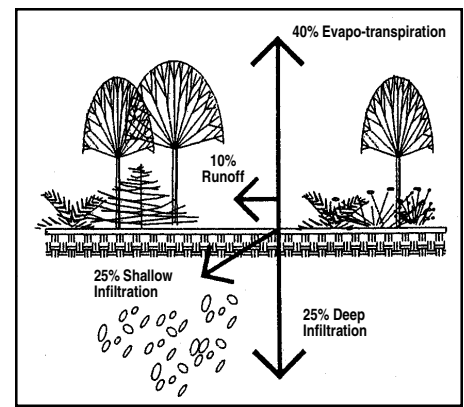
The NJDEP regulations classify municipalities as either Tier A or Tier B and have different requirements for each Tier. More than 400 municipalities qualify for Tier A: located entirely or partially in an urbanized area, a population density of at least 1,000 per square mile, a population of at least 10,000 as determined by the latest Census, or a stormwater system that discharges directly into salt water. Tier B municipalities are all others.

Programs for Tier A municipalities must include the following Statewide Basic Requirements (SBRs):

- **Public education programs** about nonpoint source pollution that include distribution of education materials or an outreach program. Topics to be covered include the impacts of stormwater discharges on surface and ground water, steps the public can take to reduce pollutants in stormwater runoff, the hazards of improper disposal of wastes and illicit connections (domestic sewage, process wastewater, or any non-stormwater discharge of a pollutant), recycling (helps eliminate litter that flushes into storm sewers), water conservation, composting, reducing use of fertilizers and pesticides, shade tree protection and planting and the use of groundcover to replace lawns.
- **Detection and elimination of illicit connections** to storm sewer systems. The regulations define illicit connections as domestic sewage, process or other industrial waste, any source of pollutant and any non-physical connection like leaks and overflows from a sanitary sewer system. Public entities will have to map stormwater outfalls that discharge to a water body and establish a schedule for regular inspection of pipe outfalls to detect illicit discharges. Under this requirement municipalities must also prohibit illicit connections to the stormwater systems.
- **Good housekeeping practices** in public works yards and municipal



Water Infiltration with 75-100% Impervious Surface



Water Infiltration with Natural Groundcover

streets. These include covering road salt storage and sanding materials, regular street sweeping, periodic and regular cleanup of stormwater facilities and scheduled maintenance of stormwater catch basins and conveyance structures.

- **Runoff control** for construction sites of an acre or larger to control soil erosion and sedimentation.
- **Runoff controls** for post-development and redevelopment projects that use a combination of structural and non-structural stormwater management devices and emphasize use of infiltration, where possible. NJDEP plans to release proposed updated state stormwater regulations (N.J.A.C. 7:8) to govern these projects late in 2002.
- **Public involvement** and participation in formulation of the stormwater plan. Tier A municipalities will have to specify measurable goals, an implementation schedule and what Best Management Practices they will use to address specific issues.

Tier B municipalities will have to develop a less comprehensive program, including the following:


- **Runoff controls** for post-development and redevelopment projects.
- **Public education** programs

### Municipal Opportunities

An excellent educational resource for town boards and residents, available through ANJEC, is the nationally recognized Nonpoint Education for Municipal Officials (NEMO) program, developed by the Connecticut Extension Service. It provides illustrations and information about non-structural

stormwater management. ANJEC has adapted this presentation for New Jersey municipalities. Contact ANJEC at 973-539-7547 or [info@anjec.org](mailto:info@anjec.org) to schedule a presentation.

Municipalities can also adopt Integrated Pest Management (IPM) on public lands and facilities to reduce pesticide runoff into waterways by a substantial amount. IPM aims to use minimal amounts of the least toxic pesticides by first applying prevention, physical, biological and horticultural controls. A number of towns and school systems have adopted IPM to reduce use of pesticides on town-owned land. (See page 8 for additional information on IPM — Reducing Pollutants Through IPM))

Local school boards are independent of municipalities and are not subject to the EPA Phase II stormwater permit. However, municipal governing bodies should work with local school boards to enhance stormwater management efforts. Towns should invite participation by staff or students in formulating a town's stormwater plan. This involvement will encourage "buy-in" by students and parents. School grounds and parking lots should be subject to the same good housekeeping practices that the municipality will use. Towns should provide students and teachers with nonpoint source pollution information because students can be very effective at encouraging their families to actions for effective stormwater management. Towns can also encourage IPM on school grounds. 

# Reducing Pollution Through Integrated Pest Management

By Laurie Bardon, ANJEC intern

**In memory of long-time trustee William Metterhouse, a nationally recognized expert on controlling plant diseases and pests using biological technologies**

## What is IPM?

Integrated Pest Management (IPM) aims to control the insects and diseases that attack crops and landscape plants while minimizing economic health and environmental risks. It emphasizes natural and safe methods, using prevention, avoidance, monitoring and suppression strategies that use physical, horticultural, and biological treatments. It uses chemicals only when necessary and then only those with the least adverse environmental impact.

A successful IPM program strives to:

- Reduce costs through reduced pesticide use;
- Reduce evolutionary pressures from resistant insect populations;
- Provide benefits through the use of self-perpetuating biological control organisms;
- Conserve energy;
- Reduce public health and environmental hazards of organic chemicals.

## How IPM Helps Protect Human Health

Pesticides are poisonous chemicals designed to kill a variety of plants or animals. Pesticides include insecticides, herbicides, rodenticides and fungicides. Both the active chemical compounds and the inert ingredients in pesticides may ultimately be toxic to humans and wildlife.

In general, pesticide use can impose many health and environmental risks. Continued dependence on pesticides has caused the evolution of strains of insects with a high resistance to pesticides. Outbreaks of secondary

pests due to the destruction of their natural controls and, damaging impacts on wildlife have occurred because of concentrations of pesticides in various food chains.

The toxic chemicals in pesticides can be absorbed through the skin, swallowed, and/or inhaled. Many pesticides are suspected to cause birth defects, cancer, or gene mutation in humans and other animals. They can also cause headaches, dizziness, stomach and intestinal upsets, numbness of hands and feet, spasms, convulsions and heart attacks. Children, pregnant women and people with chemical sensitivities and/or asthma may be at a particularly high risk from pesticide exposure.

During routine residential applications, pesticides can drift and settle on ponds, laundry, toys, pools and furniture among other household items. They can also make their way into homes when family members and pets pick up toxic residues and track them inside. Even pesticides that the US Environmental Protection Agency has approved for residential use can and do pollute streams, rivers and the water we drink.

*IPM techniques enhance sustainability of vital natural systems and help promote lawns, trees and shrubs that are more resistant to insects and disease.*

Sometimes people do not follow the precautions on pesticide labels and apply them recklessly to their homes and gardens in large quantities even when insects or diseases have not inflicted significant damage. Generally, only a small percentage of pesticides actually reach the target. The remainder often contaminates runoff and/or dissipates in the air. It is appropriate to ask, "Are pesticides really worth it?"

## How IPM Helps the Environment

Integrated Pest Management minimizes environmental impacts by using environmentally friendly methods to control pests. IPM's preventative, monitoring, and controlling techniques serve as an alternative to routine indiscriminate spraying of chemical pesticides. IPM techniques enhance sustainability of vital natural systems and help promote lawns, trees and shrubs that are more resistant to insects and disease. IPM protects beneficial insects since it uses little or





no pesticides. IPM also reduces threats to wildlife and water quality by lessening the amount of chemicals that will reach our drinking and recreational water resources.

## Elements of IPM

### Prevention

Pest prevention is a fundamental IPM concept. Prevention involves removing the conditions that might attract a pest or disease or provide it with the food and environment it needs to thrive.

#### Pest Prevention Techniques

- Adjust planting dates to avoid certain insect life stages;
- Rotate crops to reduce pest populations;
- Practice good housekeeping indoors and out to reduce food and shelter for pests;
- Plant native species, disease and insect resistant varieties in appropriate places;
- Monitor regularly for signs of damage.

Some plants need full sun, some do better in shade. Some grow best in sandy soils, others in clay or wetlands. Some need a lot of fertilizer, others very little. Nothing does well surrounded by weeds that compete for light, fertility and water and often harbor insects and diseases. When selecting annuals, perennials, shrubs or trees make sure the soil and light conditions on your property support the particular plant's needs. Strong healthy vegetation is much less susceptible to attacks by insects or disease. Monitoring flowers, vegetables and landscape plantings for damage every two weeks during the growing season can also help reduce pesticide use. With frequent monitoring, you are more likely to spot the problem before it has a chance to get too far. If you do identify a particular insect or disease, the first consider the level of damage. Then determine the best approach. Is the loss of a couple of tomatoes worth the risk and expense of treating all your plants with toxics? Why not try physical, biological or horticultural controls?



*Ladybugs help control aphids in gardens.*

### Physical Controls

If preventative measures fail to prevent pest problems, a second strategy is to use mechanical trapping devices, natural predators including various insects and birds, insect growth regulators, pheromones or other mating disruption substances. Pests can often times be removed by hand, or by using a strong jet of water. Other physical practices, including pruning, raking, and regular mulching also help. Mulch, for example, discourages weeds from growing, conserves moisture during drought periods allows better use of water by controlling runoff, and increases the water-holding capacity of light sandy soils. Using physical controls means taking on a more active role in pest management, without spending time and money on pesticide treatments that may harm the environment.

### Horticultural Controls

Various oils have been used for centuries to control insect and mite pests. Today, horticultural oils remain an important tool to manage certain pest problems. They help control aphid and mite populations that thrive on fruit trees, shade trees, and woody ornamental plants. They can also control some plant diseases, such as powdery mildew.

Although horticultural oils have different effects on various pest populations, the result is usually the same- safe and effective pest management. The oils may block the air holes through which insects breathe, causing them to die from suffocation.

In some cases, oils act as poisons, interacting with the insect's fatty acids and interfering with normal metabolism. Oils can disrupt how an insect feeds. They have few residual effects, and so their impact on beneficial or benign insects is minimal.

Horticultural practices such as pruning, mulching, planting pest-resistant trees and shrubs, composting decayed plant material and using it to improve soil quality also help control pest populations safely and effectively while protecting the environment from chemical overuse.

### Biological Controls

Biological control is yet another safe way to manage pests without the use of chemicals. Numerous organisms that feed upon or infect insect pests exist in nature. In many cases, these organisms can prevent insects from ever reaching the "pest" status. The most common natural enemies include predators, parasites, and pathogens. Predators, including various insects, birds, bats and moles, help consume and eliminate large numbers of pests. Ladybugs, for example, help control aphids. Predatory mites feed on the eggs and small stages of various insects. Parasitic wasps have helped control gypsy moths. Parasites, however, will generally only consume one host during its lifetime. Pathogens, including fungi, bacteria, viruses and protozoa can also help protect plants from disease.

### Chemical Controls

Chemical pesticides are the last resort, used only when alternative controls have been exhausted. With IPM, landscapers and homeowners use the least toxic pesticides only when a pest is actively causing serious damage. They do not spray on a calendar basis. Insecticidal soaps have been accepted as a safe chemical for aphid, mite and whitefly control.

Many commercial greenhouses now use soap regularly because whiteflies and green peach aphids have become very resistant to standard greenhouse chemicals. Insecticidal soaps act by impairing the waxy layer of insect exoskeletons, which results in the eventual death of the insect. Sulfur can be used for spider-mite control

and will control some other mites, which are resistant to other mite controlling chemicals. Sulfur competes with oxygen in the blood stream. Again, IPM aims to use very few chemical treatments, if any.


### What Commissions Can Do

A number of environmental commissions have worked with the NJ Environmental Federation to persuade their municipalities to adopt IPM for public lands and facilities.

More than 80 towns and school districts have passed resolutions supporting IPM. A number of commissions have been able to persuade their school districts to switch from periodic toxic chemical treatments to the preventative, biological and horticultural controls of IPM – for both playing fields and buildings.

### For Further Information

● Jane Nogaki, NJ Environmental Federation, 856-767-1110

- County Rutgers Cooperative Extension office (Blue Pages of the phone book) or their Pest Management Office web page at [www.pestmanagement.rutgers.edu](http://www.pestmanagement.rutgers.edu)
- Database of IPM Resources [www.ippc.orst.edu/cicp/Index.htm](http://www.ippc.orst.edu/cicp/Index.htm)
- NJDEP Pesticide Control Program [www.state.nj.us/dep/enforcement/pcp/index.html](http://www.state.nj.us/dep/enforcement/pcp/index.html)
- US EPA Office of Pesticide Programs [www.epa.gov/pesticides](http://www.epa.gov/pesticides)
- The IPM Institute of North America, Inc. [www.ipminstitute.org](http://www.ipminstitute.org) 

## Smart Growth Updates



## Courts Respect the Poor and the Profitable

By Tom Dallessio, Director, NJ Office, Regional Plan Association

*Reprinted from "Spotlight on the Region: A Bi-Weekly Report of the Regional Plan Association," 8/9/02, available at [www.rpa.org](http://www.rpa.org).*

In three recent cases, the New Jersey Supreme Court gave builders, municipal governments, and supporters of affordable housing and smart growth legislation something to like and to worry about.

On the whole, the decisions were, at least symbolically, a victory for affordable housing advocates, because they upheld the controversial Mt. Laurel decision. But whether a significant number of new affordable homes end up being built is still far from certain. Some observers muttered that the New Jersey courts may be as concerned with protecting the interests and profits of developers as with providing more housing for lower-income residents. It is clear that in two of the cases, the court said, "We trust the builders and housing advocates more than the town." With these three cases, the Supreme Court finished its first major review of housing practices in New Jersey in 16 years.

In *Toll Brothers v. West Windsor Township* (Mercer), the Supreme

Court upheld a ground-breaking law that created a "builder's remedy" allowing developers to bypass local zoning and build more housing that includes shelter for people with low and moderate incomes. The unanimous opinion upheld the 1983 Mount Laurel decision, and found West Windsor failed to provide builders with a realistic opportunity to construct affordable housing. In reaction, Governor James E. McGreevey, a former mayor of Woodbridge Township, urged the legislature to re-examine the affordable housing laws, saying that builders could use it to coerce towns to allow them to build poorly planned developments.

In the second case, the high court rejected a large Cherry Hill (Camden) development that contained no affordable housing and held that a town in Hunterdon County was right to reject a sewer hook-up for a development of McMansions in an adjacent town. Both builders and towns expressed dismay at these decisions. While towns were not successful in getting the court to abolish the builder's remedy, they

were glad the courts drew the line at requiring neighboring towns to assist in certain cases. Builders and affordable housing advocates wondered if the new rulings would have a chilling effect on private contributions for affordable housing.

The Cherry Hill project was a planned new town center with retail, offices, parks and 1,200 units of luxury housing, replacing an old horse race track. A non-profit group sued Cherry Hill, arguing the project didn't include affordable housing. According to the court, Cherry Hill could not meet its affordable housing obligation by requesting a development fee of \$4.25 million into a municipal fund to provide affordable shelter in another town. Cherry Hill's former mayor, Susan Bass Levin, supported the town center project; she is now the Commissioner of the N.J. Department of Community Affairs, and oversees the state's Office of Smart Growth and the Council on Affordable Housing.

The third Supreme Court case involved a developer, Bi-County Development, who sued the town of High Bridge to force the town to

extend its sewers to a 100-unit luxury housing development in nearby Clinton Township (Hunterdon). The developer argued it had special rights, by paying an affordable housing fee to Clinton, which would be transferred by intermunicipal agreement to another community. In other cases, these fees and Regional Contribution Agreements (RCAs) have been upheld. This time, while the court did not rule on whether RCA promotes segregation, it did infer that inclusionary developments with only a financial component would be more suspect than those with affordable housing within the project.

While the Supreme Court grabbed attention, a recent Superior Court decision also was significant. It involved East Amwell Township (Hunterdon) and the ability of local regulation to protect natural resources and community character. Superior Court Judge Helen E. Honess ruled that East Amwell's new requirement of 10 acres of land per house, instead of the previous minimum of three acres, was consistent with local, county and state planning goals, and did not destroy property values. The judge rejected claims of landowners that reducing land density reduced property values significantly.

With possible appeals to the East Amwell decision, much remains to be written. It's clear though that New Jersey is the home of the good, bad and the ugly of planning.

To avoid endless court intervention in their decisions, towns and the state should explore regional approaches, including new ideas such as a "growth share" where a region determines future opportunities for affordable housing based on growth expectations. But in the long run, the only real way to address many of the land use ills may be to enact property tax reform. Only then will much of the competition between municipalities to capture wealthy households and businesses, and avoid lower-income residents, stop. 🌱

## Sprawl: Don't Blame Affordable Housing

A September Star Ledger /Eagleton-Rutgers poll on sprawl showed that a vast majority NJ residents have serious concerns about over development, traffic congestion, open space, air and water pollution. One official's comments on the poll put forth the often-repeated misconception that the state mandates resulting from the Mount. Laurel court decisions have forced large-scale development along with affordable housing on many towns.

*In a letter to the editor, the Coalition for Affordable Housing and the Environment offers specific data to set the record straight: it is residential, office and commercial development, not affordable housing, that is at the root of New Jersey's sprawl.*

The Mount Laurel decision stated that municipalities have a constitutional obligation to create a realistic opportunity for the building of affordable housing. It is simply not true that municipalities' compliance with Mount Laurel has led to sprawl. Since 1983, municipalities have authorized more than 625,000 dwelling units, and an estimated 493,000 units have been built. Only 28,855 units qualify as affordable – a mere 5.9% of total housing production in the same period. At the same time, a staggering amount of nonresidential development has taken place, including 67 million square feet of office and retail space built during just 1995-2000, with no corresponding contribution to affordable housing.

Families in New Jersey are faced with soaring housing costs. To lay the blame for sprawl on the building of affordable housing is simply not borne out by the statistics. 🌱



## Two Perspectives on Tax Reform

"Time for Tax Reform," by Jon Shure who heads NJ Policy Perspective (summer 2002 ANJEC Report) inspired two very different reactions.

*Dr. Harry Kissileff, chair, Teaneck Environmental Commission wrote to Governor McGreevey and his two legislators.*

The attached article argues for the end of our state's over-reliance on property taxes. The high property tax favors development because municipalities need revenue. Reliance on development for revenue inhibits our ability to preserve open space, limit over-congestion, decrease pollution and stress. Shifting the tax burden to

other sources would thereby reduce the pressure to develop and increase our ability to have a sustainable environment.

We urge that you consider its cogent arguments and act as expeditiously as possible to create the means whereby our state can achieve a sound tax structure and stable economic future.

*John F. Mann, PE, a member of the Bordentown City Environmental Commission reacted differently to the article. The following excerpts from his letter outline his major concerns.*

"Time for Tax Reform" by Jon Shure highlights a key issue relating

to land development that ANJEC should continue to address.

The "NJ Tax Receipts" chart is misleading. It shows quite different tax amounts from the numbers on the web site of the NJ Treasury Department. The article includes three tax categories (Sales, Income, Corporate) that supposedly make up the "Total State" amount while the Treasury Department also includes a tax category labeled "Other" for \$6.5 billion, which is greater than the Sales tax (\$5.95 billion). The ANJEC Report chart does not identify what the values are for.

Mr. Shure neglected to address that the State sends many billions (\$11.4 billion in "Direct Aid" for 2002) to municipalities, school districts and individuals for "property tax relief."

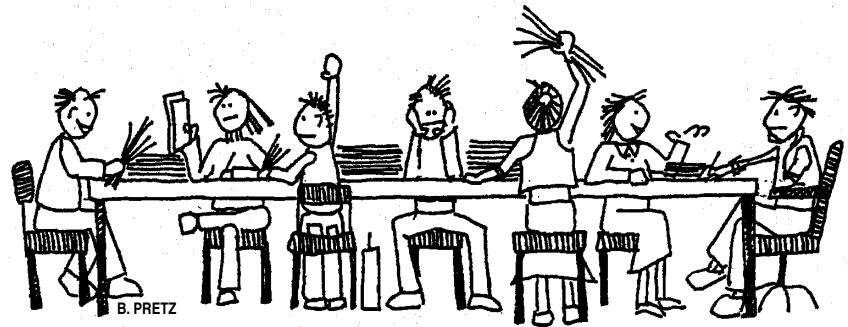
Mr. Shure also fails to address the most essential issue involved in any change to a "broad based" tax structure. By decreasing local property taxes and increasing State taxes, the State will gain much more control. Whether this is desirable is debatable.

Mr. Shure did not increase the clarity of how changing the tax structure might affect land development decisions. For example, depending more on the income tax would motivate municipalities to attract higher income taxpayers, making the problem of exclusionary development greater than it is now.

I agree that an "asset tax" would be preferable to taxing only real estate property. Increasing the relatively low corporate tax is also worthwhile. Raising the gasoline tax would certainly have many benefits.

*Author Jon Shure replies.*

"Total state" refers to the total amount of money raised from those state taxes listed in the table, for ease of comparison with the amount of money raised from local property taxes. The category "other" is indeed greater than the amount of money raised from the sales tax, however it is made up of numerous taxes, none of which by itself comes close to that amount. The numbers are for 2000. In any case, the point the numbers illustrate is that New Jersey is far from the ideal in which the amount of money raised by local property taxes would be about equal to that



raised from income taxes and to that raised from sales tax.

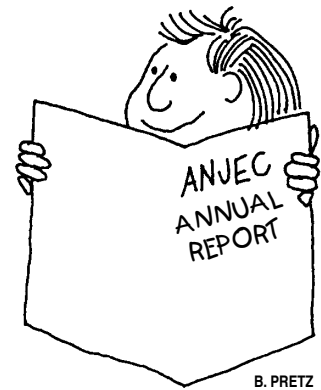
It certainly is true that the state sends back millions of dollars to homeowners, schools and municipalities in the form of property tax relief. But that does not negate the fact that New Jersey relies too much on property taxes and that doing so causes the problems outlined in the article. If the state did not send back so much money property taxes would be even higher.

The issue of local vs. state control is worth debating. But it is not necessarily relevant to a discussion of how the state currently raises money as opposed to how it might do so in a way that places less weight on the value of someone's house and is based to a greater degree on one's ability to pay. For the record, my view is there already is less local control in many areas than people might think, and that more state control in exchange for more state dollars might not be a bad thing.

Changing the tax structure would likely affect land development decisions because reduced reliance on property taxes would create less incentive for municipalities to allow construction they really don't want but accept in the hope that it will reduce the property tax rate. Since the income tax is levied by the state, there is no reason to assume that increasing that tax for higher income residents would mean municipalities seek more of those residents; the money raised from them would not stay in town.

There is a strong case to be made for raising the gas tax. We at New Jersey Policy Perspective issued a report calling for such an increase last March. This was not mentioned in

the article, however, because increased gasoline taxes should be devoted to improving mass transit, highways and other transportation purposes. The money would not, then, be available for reducing the burden of property taxes. ♣



## Annual Report for 2001 Available

*ANJEC's 2001 Annual Report* summarizes the organization's accomplishments, core services and special programs, including providing open space information which helped 34 towns get open space taxes passed, creating a new office in Trenton, holding the 28<sup>th</sup> Environmental Congress in Newark to showcase the city's special resources, organizing 26 workshops throughout the state to serve our members, developing two new publications, and establishing the SH Dudley Endowment.

For a copy of ANJEC's 2001 Annual Report, send your request to [info@anjec.org](mailto:info@anjec.org) or call 973-539-7547. ♣



## Helping the Homeless Help the Environment

In downtown Browns Mills, the Pemberton Township Environmental Commission (Burlington) is working with local homeless people to clean up an area called the "Spillway," an acre of woods along Rancocas Creek. This past spring, this safe haven was cleaned up by the homeless and indigent people living there. It is the first step toward making this area into a community park to be enjoyed by all.

The homeless people have picked up litter, created a trail and built a brick wall to keep stormwater from the road. The commission plans additional clean-up projects in other areas frequented by the homeless.

## Montgomery Pathways

As part of its ambitious open space preservation strategy, Montgomery Township (Somerset) has developed a planned network of multi-use pathways that link parks, schools and historic sites along stream corridors and in preserved uplands, the Delaware and Raritan Canal Park and Sourland Mountain Preserve. With financial assistance from NJDEP, the Montgomery Environmental Commission and Open Space Committee recently published a booklet that provides maps and descriptions of the pathway network.

*Montgomery Pathways* lays out the great variety of resources that walkers, joggers, and in some cases bicyclists, can enjoy on paths through local and regional parks. For example, the path through Mill Pond Park, which the township saved from development, goes by soccer fields, through a natural wooded area, across Dead Tree Run, through a grove of cedar trees, the ruins of a former farmstead, passes Beekman Cemetery which dates back to 1773 and then through a historic district to the D&R Canal State Park.

## Pocahontas Lake on Patriot's Path

After a quarter century of work, a new 1½-mile link to Patriot's Path provides access to Lake Pocahontas in Morristown (Morris), an early 1900's "hot spot" for boating and picnicking. With a small dam in the Whippany River, just downstream from Historic Speedwell, the new walking and biking trail is part of the Greater Morristown Greenway.

Kathy Duane, Chair of the Morristown Environmental Commission recently organized a walking tour of the area. "This is really the hidden jewel of Morristown," said Duane. The Morris County Park Commission, Morristown, Urban Conservation Action Project and the Trails Conservancy are providing the project funding. Professional Planning and Engineering of Cedar Knolls is contributing a survey of the property, the first step in seeking additional funds for the trail.

## One Man's Weed is Another Man's Gem

A proposed ordinance requiring property owners or tenants to keep lots manicured has been tabled indefinitely, largely due to the objections of the Cape May Point Environmental Commission (Cape May). Citing other borough ordinances that promote landscaping friendly to migrating birds, the commission pointed out the contradiction in the proposed ordinance.

A 1990 tree preservation ordinance resulted in national recognition for this small town. In 1998, they went even further and outlawed stone yards, requiring that 60% of a property be left in native vegetation.

## Environmental Resource Inventory Completed – Eight Years in the Making

Maurice River Township's Environmental Committee (Cumberland) has completed its Environmental Resource Inventory (ERI), after eight solid years of work. Greg Honachefsky, Committee Chair, thanks all the volunteers who had "the interest and expertise to help put it together." Along with location and base maps, it includes maps of geology, hydrology, flood plains, agricultural soils, land cover, possible contaminated sites, parks and open space, wetlands, wild and scenic rivers, CAFRA and Pinelands zones, wildlife resources and archaeology.

## Preserving Open Space in East Hanover

East Hanover Township (Morris), with only 1,500 acres of undeveloped land remaining, recently approved an open space and recreation plan that proposes a system of greenways along three major rivers (Whippany, Passaic and Rockaway) that define the municipality's borders. "The plan recommends preserving open space to create a system of greenways along the rivers and protect their banks and ecosystems," says Amy DiBartolo, chair of the commission. With the completion of the open space plan, East Hanover has fulfilled the requirements for a Green Acres \$5 million planning incentive grant for land acquisition. The township council also recently increased the open space trust fund tax from a half-cent to 1 cent per \$100 valuation. 🌿

*Keep up the good work,  
one and all!*

# Resource Center



By Michele Gaynor, ANJEC Resource Center Director

## Encouraging Recycling — Is it Up or Down in Your Town?

Nationwide, consumers are throwing out more glass and plastic bottles now than they did in the early 1990s even though municipal recycling facilities serve triple the number of people they did then. For the first time in more than 20 years, Americans are throwing away more aluminum cans than they recycle, according to a recent *Wall Street Journal* article. In 2001 according to the Container Recycling Institute, Americans did not recycle 750,000 tons of aluminum – enough cans to circle the earth 153 times.

The busier we are the less time we take to recycle. Whether vacationing, working or enjoying a ball game, the more time we spend away from home the less likely we are to recycle. What can you do to ensure that your town is doing all it can to encourage and facilitate recycling, from the school system to local businesses to homes?

### How Your Commission Can Help

Under state law, businesses, institutions (e.g., hospitals) and residences are all required to recycle. By working with your county and/or local MUA and recycling coordinator, your environmental commission can help re-educate schools, businesses and the community as a whole about the need to recycle.

Environmental commissioners should be familiar with their municipality's recycling ordinance requirements. Talk to your recycling coordinator and find out how the recycling center operates. Does the town collect its own recyclables or does it hire a private waste hauler? Find out what materials are acceptable for recycling.

Reinforcement is key to a good recycling program. Remind residents about proper recycling methods through newsletters, municipal calendars, local weekly newspapers

and flyers. Many towns include the annual recycling schedule along with the do's and don'ts of recycling in their municipal calendars.

For example, many people are not aware that the caps and lids should be removed from plastic bottles and thrown in the trash. Metal lids from glass containers, such as pickle jars are accepted in most municipal recycling programs. All recycled containers should be cleaned out.

Recycling plastics is somewhat complicated. For example, plastic bottles coded with a 1 or 2 are usually accepted for recycling, but they must have a neck that is smaller than the bottom, such as soda bottles and laundry detergent containers. Plastics coded with the numbers 3 -7 are generally not acceptable in municipal recycling programs. Yogurt containers and margarine tubs cannot be recycled.

Encourage bag returns to local supermarkets. Not only does this save on plastic bags taking up landfill space, most stores give a few cents back when you reuse or bring in your own bag. Canvas bags are great for food shopping since they usually hold more items, are very durable and environmentally friendly. Some supermarkets have recycling bins in their stores where consumers can dispose of clean plastic bags that will later be recycled.

Local businesses such as pizza places and movie theaters should have separate recycling containers apart from the trash cans. If they don't, talk to them and find out what their recycling procedure is. If they and their customers are putting recyclables in with the trash, it is likely a violation of the municipal recycling ordinance.

Does your town or county provide periodic computer pick-up or drop-off days? Household hazardous waste

disposal days? If so, get the message out! There is usually a specific time each year that residents can drop off old computers, batteries, used oil, pesticides and other hazardous materials.

### Compost! Compost! Compost!

There is a lot to be said for composting. Besides being arguably the best form of material reuse and recycling, leftover and discarded kitchen waste from fruits, vegetables and eggshells can be a good source of rich fertilizer for your lawn and garden. Composting can keep tons of useful material out of landfills - and save people money on fertilizer and soil. Turning your kitchen waste directly into your garden soil or putting it into a bin to produce compost is also a service to the environment.

### Various Programs Towns Can Use

One program based on variable-rate pricing, known as "pay as you throw" has been successful in reducing garbage and increasing recycling in communities across the country. The "pay as you throw" program charges customers by the amount of trash they dispose of, rather than a flat fee. This creates a financial incentive for conservation, reuse and recycling. Some of the variable rate pricing programs include variable-sized can programs, bag purchase programs, tag or stickers and weight-based systems.

This program encourages source reduction because garbage bills increase with the amount of waste thrown out. This variable-rate pricing encourages consumers to make better decisions on the products they purchase and the amount of waste they generate.

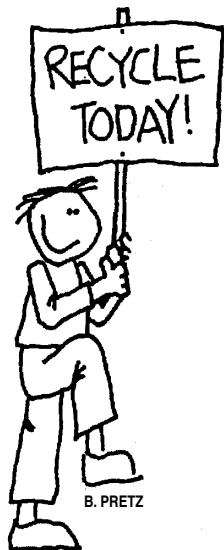
### What One Commission Is Doing

The Paramus Environmental Commission cooperated with their Department of Public Works (DPW) to contract with waste haulers to collect materials including plastic bags, aluminum foil and clothes hangers, which are often not accepted in a town's program. Paramus provides its residents with large containers to dispose of aluminum, steel and metal cans, empty aerosol cans, glass, milk and juice containers, among other items. The Borough sends out a recycling and sanitation calendar that details exactly what is to be recycled and when the pickup days are throughout the entire year.

With cooperation and education, your environmental commission can increase the types and amount of material that are recycled in your town. Each municipality should have its own recycling coordinator. As a first step, call your Town Hall and ask to speak with yours.

#### For Further Information

- Association of New Jersey Recyclers: 908-722-7575, [www.anjr.com](http://www.anjr.com).
- NJ Department of Environmental Protection: [www.state.nj/dep/dshw/](http://www.state.nj/dep/dshw/)
- The NJDEP web site includes names and contact information for county recycling coordinators. Penny Jones, Recycling Education Specialist, at the Morris County Utilities Authority, for example, offers educational presentations to businesses and schools.
- NJ Solid Waste Policy Group, Rutgers: <http://aesop.rutgers.edu/~wastemgmt/>
- Recycling Unlimited. Workshops for businesses, schools and government agencies. 732-671-9196, <http://www.anjr.com/newsite/resources/recyclingunlimited/>
- Variable-Rate or "Pay as You Throw" Waste Management Study. [www.rppi.org/ps295.pdf](http://www.rppi.org/ps295.pdf)



By Mike Hunninghake, ANJEC Project Director

## Waterfront Buffers in Urban Areas

### Background

The settlement of urban areas in New Jersey is often the story of waterways. Before the introduction of railroads, waterways were the primary conduit for the transportation of goods and people. Centers of population and commerce developed along these natural transit arteries. Industrial facilities built along waterfront areas resulted in a corresponding increase in pollution and degradation from toxins, heavy metals, pesticides, fertilizers and municipal trash. As New Jersey emerged into the post-industrial age, tougher environmental laws reduced many of the worst point sources of pollution, while globalization of the economy closed or relocated many industrial polluters, leaving behind degraded vacant urban riparian areas.

For too many years, urban municipalities turned their backs on their waterfronts, neglecting these important areas and allowing them to be despoiled. Today, the picture has changed dramatically. More and more people are interested in being able to have a view of the water, whether from their home, business or a recreational facility. Waterfront redevelopment is becoming a major focus. For these projects to provide long term benefits to the community, it is very important that they include a natural riparian buffer along the waterway to protect wetlands and water quality, prevent flooding, and soil erosion over the long term. The implementation strategy should include public awareness, public/private cooperation, and strategic planning.

Today, urban areas, large and small, north and south are working to restore their waterfronts and help them recover from the abuse and neglect of their industrial past. In August 2002, Governor McGreevey signed legislation

that gives riparian areas higher priority in the open space acquisition program. Along with other state efforts, this new policy should help NJ's developed communities rehabilitate their riparian buffers into a more natural state.

### Buffer Benefits

Waterfront buffers offer physical, psychological and economic values to their communities.

**PROTECT WATER SUPPLIES:** Urban waterways are subject to a great variety and intensity of pollutants from industrial facilities, motor vehicles, and stormwater runoff from the high percentage of impervious surfaces. A vegetated riparian buffer offers a cost-effective, efficient and low-maintenance method of cleansing runoff, thereby protecting water quality and improving aquatic habitat. These buffers often contain wetlands areas that act like sponges, storing water in times of flood and releasing it slowly in dry times. This minimizes the effects of erosion, maintains stable flows in streams and serves as habitat for plants and animals. Wetland plants also help filter out nonpoint pollutants from the stormwater that flows through them.

**PROTECT PROPERTY:** Waterfronts are often subject to flooding and the attendant threat to property along riparian corridors. A vegetated buffer area, with appropriate setbacks and minimal maintenance, can protect buildings from flood damage and erosion.

**PROVIDE PLANT AND ANIMAL HABITAT:** Most urban wildlife lives at the waterfront. In addition, vegetated waterfront areas are often resting places for migrating birds. Buffers protect these habitats and offer corridors through which animals can move.

## ENHANCE VALUE OF COMMUNITY:

When waterfront buffers include parkland, passive and active recreation opportunities enhance the residents' quality of life. At a very basic level, buffers shield people from noise, offer a visual screen, and a shaded spot for relaxation, whether it be walking, biking, hiking, fishing, wildlife observation or just sitting and enjoying the scenery. Natural buffers require minimal investment in infrastructure. They also provide exceptional educational opportunities for local schools and civic groups. Finally, as the community becomes more aware of the benefits of riparian buffers, citizens and government agencies are more likely to get involved in stewardship to maintain and protect them. In these and other ways, riparian buffers impart both tangible and intangible value to the community that nurtures them.

## Approaches to Protecting Buffers

**MAPPING:** First, identify the waterfront areas in your city and create a map to show the current use of waterfront property. Contact the local tax assessor to find out which properties are parkland, private vacant land, and empty buildings, commercial or residential structures. A "windshield survey" can help verify the specific uses. If the tax block and lot information is on GIS (Geographic Information Systems) software you can map the waterfront properties easily. NJDEP also has GIS data that shows land cover and other surface features of the waterfront.

A waterfront map can be an aid in planning for the protection of the area and for linking existing parks with greenways along the waterfront. It will also be a sales tool for convincing local officials that the area should be preserved and restored. Finally, getting the map incorporated into the local Master Plan, open space map and environmental resource inventory will help establish the official importance of the waterfront to the municipality over the long term.

**ACQUISITION:** Municipalities usually establish waterfront buffers through a combination of acquisition, donation and/or regulation. Outright purchase with state Green Acres and county or local open space funds, or through a

local land trust is one avenue. Another is to demonstrate the benefits of donating a tract in full, selling it at a bargain price, or protecting the land through conservation easements so that property owners will take advantage of these approaches. Finally, municipal ordinances can specifically provide for or encourage the establishment of riparian buffers. The ordinance would require that any new development along the waterfront leave a vegetated buffer of a specified width

**RESTORATION:** Local conditions, including the land use history, natural features, like soil permeability, extent of existing vegetation, steepness of slopes, local wildlife populations and other factors generally determine specific approaches to reclamation. Planting buffer vegetation, in the form of filter strips of grasses, shrubs or trees (ideally native species), can successfully yield a number of benefits, including the prevention of nonpoint pollution, erosion, and enhancement of wildlife habitat. The creation of trails or paths, designed to be compatible with the landscape, can offer residents recreational and educational opportunities, as well as encourage alternative, non-motorized modes of transportation.

## Examples of Local Buffer Programs


**CAMDEN:** The Camden Greenways Plan is an ambitious effort to create a nine-mile greenway along the Cooper and Delaware Rivers and Newton Creek in Camden. In addition to a pedestrian path with linkages to a high school, grade school and two parks, the Plan envisions the restoration of woods and green space along these riparian corridors. A broad coalition of federal, state and local organizations are participating in the Camden Greenways Plan, including the National Park Service, US Army Corps of Engineers, US Department of Agriculture, NJ Department of Environmental Protection, Camden County Parks Department, City of Camden, NJ Conservation Foundation, Association of NJ Environmental Commissions, Delaware Valley Regional Planning Commission, Delaware Riverkeeper, Rutgers University, Rowan University, and community organizations representing the neighborhoods of Cramer Hill, North

Camden, Parkside, and Fairview/Morgan Village in Camden.

**TEANECK:** The Hackensack River Greenway proposes a 3.5 mile buffer area between the river and Teaneck's developed areas. The project seeks to link up with buffer areas in adjacent municipalities, incorporating a pedestrian walkway and nature trail, as well as the planting and restoration of native vegetation. Agencies involved in this project include various Teaneck municipal bodies, including the Environmental Commission, Planning Board, Historic Preservation Commission, and the Park, Playgrounds and Recreation Advisory Board, as well as the Teaneck Hackensack River Greenway Advisory Board, Friends of Historic New Bridge Landing, and Bergen County-Department of Planning and Economic Development.

**NEWARK:** As part of a large-scale project being carried out by the US Army Corps of Engineers, the Passaic River Waterfront Park will include the restoration of 3,200 feet of riverbank, the creation of wetlands and passive recreation along a 9,200-foot waterfront walkway. The project aims to reduce flooding and erosion, provide recreational and educational opportunities, and restore an area that has been environmentally degraded by past intensive commercial and industrial use. In addition to the US Army Corp of Engineers, stakeholders in this project include the Passaic River Coalition, NJ Department of Environmental Protection, NJ Department of Transportation, and the City of Newark.

## Conclusion

The greening of urban areas is a vitally important component in creating a sustainable environment for many of New Jersey's communities. To achieve the smart growth and implement the State Plan, our urban areas must attract more residents and businesses, thereby alleviating the pressure to develop in our rapidly vanishing greenfields. After a long period of neglect, residents are recognizing the inherent value of waterfront areas and their potential benefits to the community. Waterfront buffers are an effective tool for urban communities to improve their quality of life and help ensure a sustainable future for New Jersey. 



# Good Earthkeeping

Information commissions can pass on to their communities

## To Be Well, Test Your Well

By Kerry Miller, ANJEC Assistant Director

There's nothing like having the well go dry to get one thinking seriously about conservation and water supply issues. The 370,000 New Jersey property owners who rely on private wells for their water have, surely, developed a heightened awareness of their water use over the past few years, as increasing development and lack of rainfall take their toll on underground aquifers.

Well water *quality* is just as important as quantity, but easier to overlook. There is rarely a clear signal when microorganisms, nitrates, pesticides or VOCs (volatile organic compounds) contaminate well water. Yet these contaminants do make their way into private wells. Homeowners who choose the "blindness" approach, assuming that their well water is OK, are taking a gamble with their health. The potential risks are kidney and nervous system damage, intestinal illness, cancer and birth defects.

Since September 2002, the New Jersey Private Well Testing Act (N.J.S.A.58: 12A-26 et seq) and its implementing regulations (N.J.A.C. 7:9E) have required private well testing, with results reviewed by both buyer and seller, before a property can be sold. Although the law does not require any action if pollutants are found, the buyer and seller are free to negotiate any specific actions. Starting in 2004, landlords will have to test their wells every five years, and share the results with each new tenant.

Malfunctioning septic systems are a common source of groundwater contamination by bacteria (like E. coli), viruses or parasites. Microorganisms also get into the water via feedlots or other sources of animal waste. While it is sometimes possible to repair septic, it is often necessary

to relocate the septic or dig a new well. Water conservation to prevent overload of the system, and regular maintenance and pumping of the septic system are imperative to protect surrounding water quality.

Chemical fertilizers or organic wastes can cause nitrate pollution of groundwater. This problem is common in agricultural areas. Lead and mercury can leach into groundwater from industrial sites or landfills. (Lead can be a problem in non-well water, too, if a home's pipes contain lead solder.) Pesticides, including arsenic, migrate into groundwater from farms, golf courses or industrial sites. Water can even contain radiation, either from industrial sites or from the normal breakdown of rocks and soil. In northern areas of the state, road salts have contaminated some wells.


The new regulations require testing for total coliform bacteria, nitrates, iron, manganese, pH, lead, and all VOCs for which state regulations have established maximum contaminant levels. VOC's include substances like benzene and trichloroethylene. They also require testing for arsenic in 10 northern and central counties considered high risk, and mercury in nine southern and shore counties. Testing for gross alpha particle activity, including radium, will be phased in over an 18-month period in 12 counties.

The bottom line is that you shouldn't wait until you sell your house to test your water. Groundwater is a shared resource. It doesn't move quickly under the earth, but it does move, and contamination can come

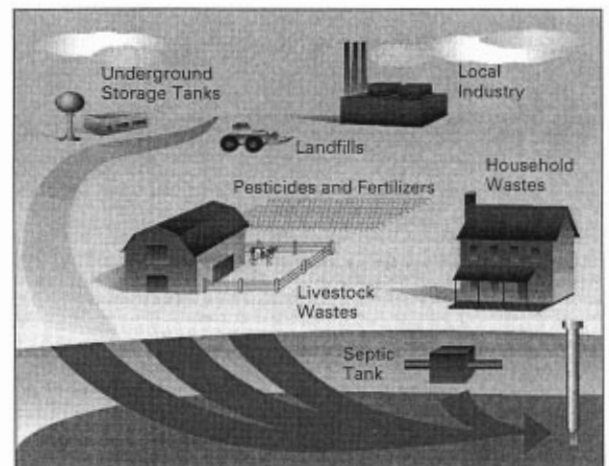
from areas not immediately adjacent to your property. NJDEP recommends testing for total coliform bacteria, nitrates, and VOC's once a year. The Department suggests testing after a heavy rain, because that is when contamination is most likely to occur.

The state certifies commercial laboratories to do tests required by the new regulations. When you test your well, keep records of the results so that successive tests can be compared. This may help you to spot any changes and catch a bad situation before it becomes acute.

### For Further Information

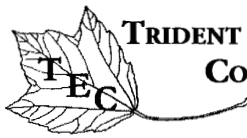
- Your local or county health department (Blue Pages of the phone book)
- NJDEP Bureau of Safe Drinking Water (609-292-5550)
- NJDEP's website on the Private Well Testing Act ([www.state.nj.us/dep/pwta](http://www.state.nj.us/dep/pwta)) includes the text of the law and regulations, requirements for testing by substance and county, a list of certified laboratories, and resources on drinking water topics. 

Reasons to check the quality of water in your well.



US EPA

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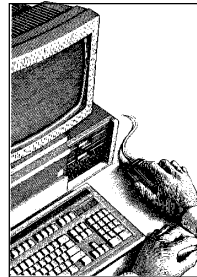
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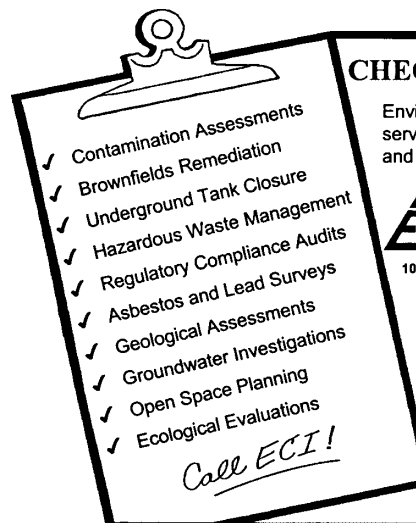
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