# PEP Talk

The Newsletter of the Peconic Estuary Program

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## A Healthier River

After 6 years and $11 million, 19.8 acres of the Peconic River have been cleaned up between the sewage treatment plant outfall on the Brookhaven National Laboratory (BNL) property and the area just east of Manor Road in Riverhead. A broad partnership is to credit for this success, including EPA, NYSDEC, citizens, environmental groups, and Suffolk County. The Community Advisory Council at BNL and the Peconic River Working Group provided huge amounts of time and input to the decision making process.

**Before (11/25/03)**

**After (8/25/05)**

*Photos by Jennifer Higbie, BNL*

BNL considered several alternative cleanup methods, including 1) phyto-remediation where plants would be used to extract contaminants from the river sediment; 2) electro-chemical removal where specially designed electrical grids would be used to concentrate contaminants for removal; 3) suction-guzzling where a large vacuum would selectively remove contaminated sediments, leaving vegetation behind; and 4) routine excavation and restoration

*See BNL on Page 2*

## Mending Marshes, Ditching Disease

Suffolk County has embarked on an ambitious plan to restore wetlands while controlling mosquitos. This plan could dramatically, and positively, affect the nearly 5,700 acres of tidal wetlands in the Peconic Estuary.

Wetlands are an environmental treasure. The boundary between land and sea, they are a unique and fragile habitat critical for various species of fish, birds, and other animals. Unfortunately for the wetlands, one of these animals is an insect which is the dread enemy of man: the mosquito.

Although an integral part of the food web, mosquitos move blood between people and animals and are capable of transmitting disease.

*See MOSQUITO on Page 4*

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**Bay-Friendly Ice Fighting: A How-To Guide**

1. Use physical methods of snow and ice removal, when possible. In addition to shovels, long-handled ice scrapers are effective on ice.
2. Avoid using urea or other fertilizers to melt ice, as they can increase nitrogen pollution in the estuary.
3. Practice anti-icing by applying deicers at the beginning of the storm. Doing so may require up to 90% less deicer because it prevents snow and ice from binding to pavement, enabling physical removal by plows and shovels.
4. The Center for Watershed Protection recommends using calcium chloride rather than sodium chloride (regular rock salt).
5. If you use salt, apply no more than a handful per square yard. If you use calcium chloride, you need even less - about a handful for every 3 square yards.

*BNL from Page 1*

techniques. Phyto-remediation and electro-chemical removal were ruled out due to inefficiency. However, BNL went forward with pilot studies using suction-guzzlers and standard excavation techniques. Extensive review indicated that the most efficient, cost effective, and environmentally friendly technique was standard excavation and restoration.

The planned restoration involved bringing in topsoil and nursery-grown native vegetation. However, there were concerns that the former could inadvertently introduce invasive plants or other contaminants to the system and the latter could introduce maladapted genetic strains. After considering input from the community, it was decided the restoration would occur without the addition of topsoil, and BNL would pre-harvest the existing native vegetation, clean contaminated sediments from the roots and save the plants for replanting. Additional native plants were taken from upstream areas onsite at BNL. Finally, the public and NYSDEC were concerned over the survival of the banded sunfish, a NYS threatened species. So, efforts were made to rescue any fish and place them in sheltered waters to reproduce and eventually be returned to the river.

The cleanup proceeded onsite at BNL between May and September 2004, followed by the offsite portions of the river between September 2004 and May 2005. 21,188 cubic yards (more than 28,000 tons!) of sediment containing contaminants including mercury, PCBs, and minimal radionuclides were removed. Mercury levels, the primary driver for the cleanup, were reduced to 0.09-2.0 parts per million.

Once cleanup was completed, the river banks were regraded to create a natural mix of high marsh, low marsh, and open water areas, and 42,785 plants were planted. Because topsoil was not brought in, the open water areas of the river increased. Evaluation of the restoration in September 2005 indicated that nearly all low marsh and high marsh areas, as well as open water areas, were successfully restored. To date, approximately 250 banded sunfish have been re-introduced to the river.

The river has definitely started the recovery process, and progress will be tracked by BNL over the next several years. All-in-all the Peconic River clean-up can be considered a success!

~Tim Green, Ph.D., Brookhaven National Lab

PEP Talk is published by the Peconic Estuary Program (PEP), a partnership of governments, environmental groups, businesses, industries, academic institutions, and citizens. The PEP's mission is to protect and restore the Peconic Estuary system. Learn more at www.peconicestuary.org.

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# Please Pass the Salt...

Is the Peconic Estuary in danger of becoming a place where *salt* and salt water - rather than *fresh* and salt - meet and mix? In an effort to keep society safely on the move, maintenance crews sprinkle salt on roadways to melt ice and snow each winter. New York State has the second highest salt application rate in the country – approximately 500,000 tons per year. A portion of this salt eventually runs off to streams or bays or leaches into groundwater.

A recent study published by the National Academy of Sciences analyzed the effects of deicing compounds on water quality in the Northeast. During the winter, chloride (the Cl in common salt – NaCl) concentrations in freshwater streams reached levels of up to 25% of seawater concentrations. The effects of salt applications persisted; during the summer some areas had chloride concentrations up to 100 times greater than streams in forested areas. Chloride concentration in streams increased as a function of impervious surfaces, such as roads, parking lots and houses. As reported in the last issue of *PEP Talk*, impervious cover has surpassed 20% in some areas of the Peconic watershed due to increased paving and development. The authors of the aforementioned study predict that if salinity continues to increase at present rates, many surface waters will be undrinkable for humans and toxic to aquatic life within the next century.

*Snow melting into a storm drain in a salted parking lot. Photo by Rick Balla, USEPA*

Snow is a fact of life in the Peconics, and snow removal and deicing are imperative for public safety reasons. Most municipalities on Long Island use rock salt (sodium chloride, or NaCl). Some also use sand, which provides traction but does not melt ice. Many deicing agents exist, but all have significant disadvantages related to environmental effects, cost, and/or structural damage – as we all know, salts can wreak havoc on automobiles and landscape plants. The table below summarizes the effects of the most common active ingredients in deicers.

Keep your pathways – and our bays and drinking water – safe this winter. See the box on page 2, and salt smartly!

~Shana Miller, NY Sea Grant

| Deicer | Works to | Potential Environmental Effects | Effects on Hardscapes | Cost |
|---|---|---|---|---|
| Calcium Chloride ($CaCl_2$) | -25°F | Chloride effect*; may trigger release of toxic metals from soil | Metal: less corrosive<br>Concrete: moderate damage | $$ |
| Magnesium Chloride ($MgCl_2$) | -13°F | Chloride effect*; may trigger release of toxic metals from soil | Metal: less corrosive<br>Concrete: moderate damage | $$ |
| Calcium Magnesium Acetate (CMA) | 22°F | Few adverse effects | Metal: non-corrosive<br>Concrete: moderate damage | $$$ |
| Rock Salt (NaCl) | 15°F | Chloride effect*; increases erosion; contains cyanide | Metal: most corrosive<br>Concrete: mild damage | $ |
| Sand (for traction, not deicing) | N/A | Accumulates in environment if not collected, burying plants and aquatic life in sediment, clouding waters, clogging storm drains, changing soil structure | Metal: non-corrosive<br>Concrete: no damage | $ |

*Because the addition of chloride changes the salt concentration in water, freshwater vegetation and aquatic life are less able to regulate water exchange.

*MOSQUITO from Page 1*

Globally, mosquitos still cause millions of malaria deaths a year. Here in the U.S., malaria has been substantially eradicated, but West Nile Virus has killed over 600 people and caused over 5,000 severe neurological illnesses since 1999.

To combat mosquito-borne disease, humans have attacked mosquitos where they breed. Stagnant water on marshes is prime mosquito habitat, so wetlands nationwide were drained via ditching in the early 1900s. By the end of the 1930s, most of Suffolk County's 17,000 acres of salt marsh were grid-ditched. While the wetlands were generally not destroyed by ditching, they were dramatically altered. Instead of a mosaic of ponds and waterways, the wetlands are now typically relatively dry grids filled with one type of marsh grass, *Spartina patens*. This "drying out" of the marsh has been bad for biodiversity, not only for plants, but also for the fish, birds, and other animals that rely on the marsh.

*A Virginia Rail nest in the Wertheim NWR pilot OMWM site. Photo by Ducks Unlimited*

How do we restore these marshes, while continuing an effective "vector control" program to address mosquitos and disease risk? To answer this question, Suffolk County began the "Vector Control and Wetlands Management Long-Term Plan" in 2002. The Plan addresses several recommendations of the PEP's Comprehensive Conservation and Management Plan, including pesticide reduction and habitat restoration. As per the Long-Term Plan, wetlands restoration is expected to result in at least a 75% reduction in mosquito larvicide use throughout the County.

Following the lead of New Jersey, Connecticut, and other states, the Long-Term Plan has determined that marshes can effectively be restored in ways which also minimize mosquito breeding. "Open Marsh Water Management" (OMWM) creates ponds and tidal fish access channels on the marsh and fills in some stagnant ditches. This biodiverse mosaic of micro-habitats is designed to ensure that fish can consume mosquito larvae before they become a problem. Because it reintroduces more saltwater to the marsh, OMWM will also limit the invasion of *Phragmites*, a nuisance species. County-wide, 4,000 acres of wetlands are targeted for major OMWM efforts, largely along the South Shore Estuary system. A pilot OMWM project is already underway at the Wertheim National Wildlife Refuge in Shirley.

At least 4,000 acres which do not pose a mosquito-borne health threat will be "left alone," and monitored for ecological recovery. A significant amount of this "natural reversion" will occur here in the Peconics, with its sparse population and large areas of parkland. The era of routine machine maintenance of the grid ditch network has ended, and no new grid ditches will be constructed.

The Long-Term Plan is in draft form and will be finalized in 2006. It will take at least a decade to implement, and its success will require the cooperation and support of the public, government agencies, and other stakeholders. To learn more about OMWM and the Long-Term Plan, visit www.suffolkmosquitocontrolplan.org.

~Walter Dawydiak, J.D., P.E.
Suffolk County Dept of Health Services

# Estuarine Explorers

**"Nature is full of genius, full of the divinity; so that not a snowflake escapes its fashioning hand."**

~Henry David Thoreau

### 1st Ever PEP Photo Contest!

Calling all shutterbugs - we're looking for photos that capture the Peconic's scenic beauty, economic and recreational opportunities, as well as evidence of human impacts. The grand prize winner will receive a high-quality PEP button-down shirt.

**Submission deadline: May 1, 2006**

See www.peconicestuary.org/PhotoContest.html or call 631-852-5750 for more details.

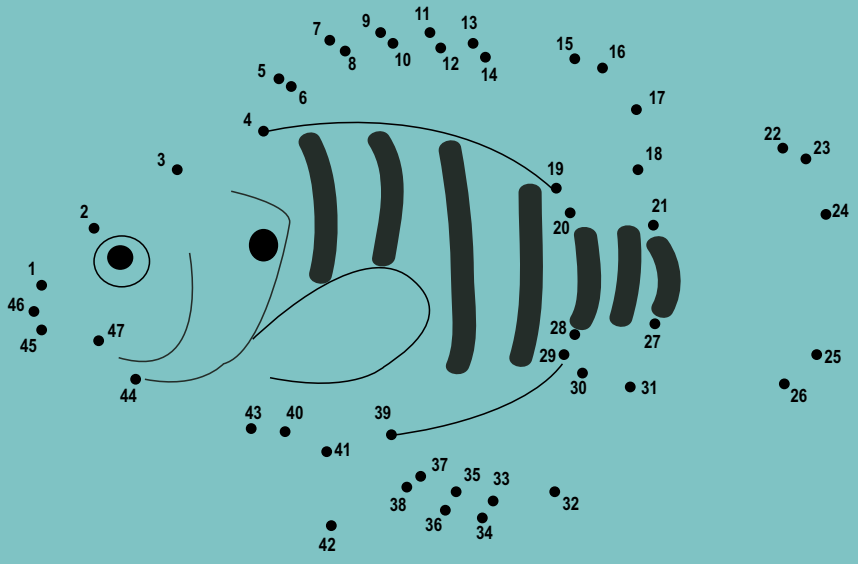
### *News Briefs*

- Congressman Bishop recently announced $1 million in Federal funding for mitigating stormwater runoff in the Peconic Estuary watershed.
- On November 3, 2005, Governor Pataki announced the latest round of NYS Clean Water/Clean Air Bond Act projects, including $2.1 million to install a system to use the effluent from the Riverhead Sewage Treatment Plant to irrigate the adjacent Indian Island Golf Course and $275K to restore fish passage on the Peconic River. Two other projects will fund stormwater management in Shelter Island and Southampton.
- The U.S. Environmental Protection Agency recently removed Southampton's North Sea Municipal Landfill from the Federal Superfund List. It was added to the list in 1986 due to groundwater contamination.

# Peconic Pals

## Connect My Dots

Who am I? A little hint - I'm small, I'm chubby, I'm sunny, I'm threatened, and the Peconics are very important to me. If you connect the dots and still don't recognize me, see page 6 for my masked identity.




**Go to www.peconicestuary.org/Kids.html for the puzzle solution.**

# Species Snapshot

## Banded Sunfish (*Enneacanthus obesus*)

*Photo by Tim Green, BNL*

New York's smallest species of sunfish, the banded sunfish averages just two inches in length. It occurs in slow-moving, shallow, sandy-bottomed areas and prefers heavily vegetated areas of lakes, bogs and streams, which provide protection from larger fish. The banded sunfish is found from Florida to southern New Hampshire. In New York, it only occurs in about 20 interconnected waters in the Peconic River watershed. Due to its limited range, it is listed as a threatened species in New York.

A colorful little fish, the banded sunfish's olive colored body is sprinkled with iridescent gold, green and purple. Short and stout, this sunfish is most easily recognized by its round shape, which is even obvious in very small ones. In fact, in the early 1900s it was called the chubby sunfish. Though similar in appearance to the bluespotted sunfish in that it has three spines in the anal (bottom rear) fin and a rounded, rather than forked, tail, the banded sunfish can be distinguished by the 6 or 7 dark vertical stripes on its body. In addition, the banded sunfish has rounded pectoral (front side) fins, and a gill cover spot that is almost as large or larger than its pupil. To make things easy, bluespotted sunfish do not occur on Long Island.

Though little is known about the habits of the banded sunfish, it is thought to breed in NY during mid to late June. Adults will spawn where they have access to slow moving water with submerged vegetation. In ponded areas without associated streams, they will nest in shallow water on sandy bottoms in vegetation. One male is usually accompanied by two females during egg laying and nest building.

Because the banded sunfish is a threatened species in New York, any banded sunfish caught (such as in a minnow trap or dip net) should be released immediately back into the water. The biggest issue for this fish on Long Island is that they can only survive where ponds do not become dry due to lowering of the water table.

*Did you know?* During the Brookhaven National Laboratory clean-up of the Peconic River, banded sunfish were moved to a safe pond on the property and then reintroduced to the river once the area was decontaminated.

~Eileen Stegemann & Bruce Cronemeyer, NYS Department of Environmental Conservation

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