

# The Tide is High

The Meadowlands ponders the effects of global warming

BY NATE SCHWEBER

GLOBAL WARMING? THAT'S COLD- Melting icebergs could soon lead to dramatic changes in the landscape of the Meadowlands.

In a literal sense, Cheryl Segro worries that Paterson Plank Road in Secaucus, which runs right in front of Bill's Jewelers where she works, might look like a canal in Venice decades down the line if the most dire global warming predictions come true.

In a syllabic sense, she's worried that should those polar ice caps melt and sea levels rise to flood low-lying areas worldwide, her hometown, Secaucus, could be abbreviated to simply "Sea."

Scientists warn that the earth is warming at an unprecedented rate, putting swampy, marshy coastal regions, in other words the Meadowlands, at grave risk.

While few of the tens of thousands who live and work in the area fear that such alarming circumstances are nigh, many are monitoring, watching and trying to plan for the Meadowlands in a warmed world.

## A wet new world, sooner than you think

"If the sea levels rise, it's a whole new ballgame," says Wai Lee, chief of stormwater management for the New Jersey Meadowlands Commission. "Since the Meadowlands region is so low and flat, it will have a big impact on the region, probably flooding quite a bit of property."

Alexander Gates, who leads the Earth and Environmental Sciences department at Rutgers, says that the earth is warming at a far faster pace than ever before.

"If you see pictures of arctic ice over the water, it's dropped by about a third over the past 15 to 20 years," he says. "You're seeing the effects of this now. When storms come in, they do a lot more damage."

Gates adds, "We've already seen increased damage from storms. In as little as 15 or 20 years, we'll probably start seeing things on a more permanent basis as opposed to on a storm basis."

By "things," he means flooding, more saltwater spray leading to cars and other metal rusting and an increase in insects and animals that thrive in warm, humid atmospheres, such as mosquitoes and rats.

Kim Kohl, 52, who lives in Secaucus, says stronger storms worry her the most.

"I wouldn't be surprised if we get hit with a hurricane," she says. "They've been getting stronger and stronger."

Hackensack Riverkeeper Capt. Bill Sheehan said that over the past several years he's noticed different patterns in the weather, which he suspects is symptomatic of global warming.

"I can't put a number on it, but the general unpredictability of the weather has increased," he says. "It's rained so many days this summer we've been having a rough time keeping our calendar on schedule."

If the temperature ratchets up several degrees, Sheehan worries that the strange weather could culminate in the destruction of the cause that he's fought so many years for: the protection of the region's marshes.

"We fought like the dickens in the 90s in order to preserve some relatively large tracts of wetlands in the Meadowlands for the natural resources and infrastructure they provide to the neighboring communities," he says. "One of the fears I have now is that in another 30 years a lot of those wetlands that we fought so hard to save may be underwater."

## Welcome to Lake Meadowlands

Francisco Artigas, director of the Meadowlands Environmental Research Institute, says that he is measuring rising sea levels at seven different locations throughout the Meadowlands. However, testing whether the water level is rising is trickier than just checking where the waves curl.

Simultaneously, the land itself is both collapsing onto itself, getting lower, and rising up due to sediment deposits, getting higher, Artigas says. Knowing where to start measuring water levels is the first challenge, he says.

Thus far, Artigas says that he has not found any discernible increase in the water level.

However, should the water start to rise, it's bad news for the Meadowlands, Artigas says. Glaciers carved out the area millennia ago, and as a result the Meadowlands is bordered by the high ground which is now Route 17 to the west and the Palisades to the east.

"In this particular estuary, it's like a bathtub," he says. "We are surrounded by steep walls on each side."

In addition to that being bad news for the people living in the "bathtub," it's also potentially bad news for everything that crawls, swims, slithers, darts, runs and flies in the region too.

Normally, Artigas says, as water levels rise the wetlands move incrementally higher. Unfortunately in the Meadowlands, because it is bordered by steep hills, the marshy areas would have nowhere to go and virtually disappear underwater.

"In the worst case scenario, we would lose a lot of our marshes," he says. "In the extreme case, the region would go back to being a big lake or a big bay."

Artigas says that the direst warnings predict that the seas will rise between two and three feet in the next century. An offhand list of the birds that could disappear from the region should such a change take effect include the Spotted Sandpiper, Killdeer, Least Tern and Piping Plover. The fish, he says, could shift from more coastal species to more oceanic species.

"You need extensive mud banks to support these populations," he says. "That's where they get their little creatures, the invertebrates. They rely on those."

Niketani Baranwal, 9, whose father, Nagendra Baranwal, runs Un-Oriental Rugs in Secaucus, says that he's very concerned about global warming's potential impact on flora and fauna in the region.

"I would think animal resources would be destroyed," he says. "I don't know if it would flood all the way up here, but it could."

## Preparing for the deluge

In addition to how nature's creatures could be affected by global warming, there's the question of how it might affect the scores of people who live in the region.

John Miller, a certified floodplain manager for the New Jersey Association for Floodplain Management, says that almost the entire Meadowlands region could be susceptible to flooding.

"It's covered by floodplain," he says. "It's the Hackensack River running through this whole area."

One of the major problems, Miller says, is that outside the current floodplain, almost all of the land has been developed, meaning that should water levels rise, the Meadowlands could be like a bathtub with no drain.

"You have very developed areas in the Meadowlands, meaning that when rain falls on these developed areas, it just doesn't have anywhere to go," he says. "It's an area that has filled its wetlands with buildings, roads and parking lots and doesn't have a way to drain in a regional sense."

Dr. Beth Ravit, who teaches environmental science at Rutgers University, says that where once there were more than 20,000 acres of undeveloped wetlands in the Meadowlands region, today there are around 8,000 acres, almost all at the lowest elevations which would flood fastest.

What really complicates predicting how rising seas could affect the Meadowlands is the amount of human hydraulic engineering throughout the region, she says.

"After areas were drained to allow development, areas were created that are below sea level," Ravit says. "So we're dealing with a system that's been highly affected and manipulated by humans. Therefore, predicting exactly where the problems are going to occur is going to be more difficult than with a natural system."

Many experts say that some of the first areas to be affected will be ones that already tend to flood during storms, such as Route 7.

Ravit says officials in the Meadowlands are trying to plan new infrastructure, such as tide gauges, dikes and dams, that would be equipped to handle rising seas.

## In face of global warming, Secaucus shrugs

Angelo Marra, 79, of Marra Drugs in Secaucus, says he's not worried about global warming's effects on his town.

"I won't see those days," he quips. "And so far we've been spared. We haven't had a flood."

Denise Ross, who works at Riviera Tan in Secaucus, says that while she worries about global warming and conserves as much energy as possible to help slow it, there are also some potential business benefits. Imagine a beach right in front of her tanning salon.

"With the weather now so rainy and hot and humid in the summer, it's helped our business," she says. "The no snow in the winter has also been a good thing."

Like most in the region, Luis Casas, owner of the Doll and Teddy Bear Hospital in Secaucus, hasn't thought much about global warming.

"I'm not worried about it yet," he says. "Maybe later." M



CLIMATE CHANGE COMING- These images (right), from Ohio State professor and glaciologist Lonnie G. Thompson, demonstrate the regional effects of climate change by the end of this century. Large areas of the Meadowlands could soon be underwater, including parts of Kearny, Lyndhurst, North Arlington and Secaucus.