

Typical teen wins atypical recognition for science

By ABIGAIL TUCKER
The Stamford Times

STAMFORD — Like a lot of 16-year-olds, Igor Zelenberg is into heavy metal. But, unlike most enthusiasts, his interests lead to a prestigious science prize.

A national semifinalist in the Siemens Westinghouse Competition in Math, Science, and Technology, Zelenberg, a senior at Stamford High School, studies the kind of heavy metal that pollutes oceans, not airwaves. His science project, which analyzes the effects of heavy metal pollutants on local fish populations, was one of 288 selected from a pool of approximately 1,200 experiments submitted by high school seniors across the nation.

He was one of five semifinalists in the state.

Stamford High hasn't produced a Westinghouse semifinalist in at least 10 years, according to Frank LaBanca, Zelenberg's science teacher who advised the experiment and, later, the 20-page scientific paper Zelenberg wrote to analyze the results.

"Just to be in the pool of 1,200 is an honor," said LaBanca, who, in eight years of teaching at Stamford High, has never even entered another student in the competition. "Just to have submitted the paper is a big deal. He's sort of my pioneer. He's the true stellar star."

"My project just took off. I have no idea why," said Zelenberg, who moved to Stamford three years ago from Brooklyn and immigrated from Russia when he was four. "I guess because I put in the work, after school, Saturdays and Sundays. I didn't have a weekend for a while there."

Zelenberg conceived of the idea for his project last year, when he was enrolled in LaBanca's scientific research class. Along with designing original experiments, students in the class worked with mentors at local colleges and read scientific journals.

He decided to compare the levels of althionine, an enzyme that organisms produce in the presence of heavy metals, in the bodies of fish living in two different Long Island Sound marshes, one of which was more polluted than the other. He hypothesized that fish in the polluted marsh would build up more of that enzyme — and he was right. He also showed that fish with higher enzyme levels were smaller and less healthy than fish with lower enzyme levels.

Visiting marshes in Stratford and Stonington, LaBanca and Zelenberg lured minnows into a metal net with the leftovers of a Big Mac. Back in the lab at Stamford High School — or, when the school's equipment wasn't sophisticated enough, at local colleges —



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Science award recognizes research

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Originally, he focused on minnows because they are abundant and will eat anything, thus indicating the chemistry of the marsh, he said.

That portion of the project won him the Westinghouse honors, and he will submit similar data to another national science talent search later this month. But now, Zelenberg is enrolled in an independent study class to continue his research and is embarking on a new phase of his salt marsh project: He will study the effects of the metals on other

species. Analyzing enzyme levels in everything from shrimp to seaweed, Zelenberg will attempt to formulate a mathematical model to express his findings, LaBanca said.

If the results are strong enough, LaBanca said, Zelenberg could publish in a scientific journal of the sort that his peers study as part of their class work.

But Zelenberg, a two-sport athlete who founded a history club at Stamford High last year, said he's not trying for honors or for admission to a prestigious college — although he admitted that he would like to study biochemical engineering at Cornell next year if he gets in.

"I wasn't the best kid in the class or anything," he said. "I put more work in. I didn't need the credit. I didn't do it for the

grade. I did it because I wanted to."

He said that he hopes the study will help people understand the danger that heavy metal pollutants present — not just for minnows, but for themselves.

"If you really look at my project, it's just a little study," Zelenberg said. "But it contributes to a large body of knowledge. We all know that pollution isn't the best thing, but I showed that fish in polluted marshes are less healthy. And we're eating these fish, indirectly. We eat the bluefish that eat them."

"I did this project because I like to eat bluefish," he continued. "I like to fish in Long Island Sound."

LaBanca said that he hopes that other Stamford High Students will be inspired by Zelenberg's example.

"The hardest thing is to get kids excited about science," he said, offering a hypothesis of his own: "Success usually brings more success. At least, I hope that will be the case."

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