

Hudson River Estuary Teacher Education Program



Summer 2004



Wallerstein Collaborative for Urban Environmental Education
Department of Teaching and Learning
Steinhardt School of Education
New York University

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Project Title: Hudson River Estuary Teacher Education Program

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Project Description

Funding from the New York City Environmental Fund (NYCEF) provided New York University's Wallerstein Collaborative for Urban Environmental Education with an incredible opportunity to educate teachers about the Hudson River Estuary. The estuary presents a valuable opportunity for urban environmental education, yet few teachers are knowledgeable about this vital natural resource. As a result, it is rarely included as a topic of study in urban classrooms. This pilot program, targeted especially for teachers and students featured lectures, field trips, and a summer internship component in an effort to introduce participants to the history, geology, and ecology of the Hudson River Estuary.

NYCEF funding enabled the Wallerstein Collaborative to expand the Hudson River Seminar Series initiated by an NSF grant, into a year-round professional development program for classroom teachers entitled **The Hudson River Education Series**.

The series was launched with a session on the natural history of the Hudson River entitled "Ecology and Geology of the Hudson" which featured noted geologist and educator Sidney Horenstein, of the American Museum of Natural History.

Dr. John Waldman, Head Scientist of the Hudson River Foundation, provided an overview of "Ecology of the Hudson River" and Dr. Michael Levandowsky, Adjunct Professor, Research Scientist, of Pace University, presented a session on "Plankton Life in the Lower Hudson."

Other sessions featured the NY/NJ Baykeeper, The River Project, and a screening of *Gotham Fish Tales*; a documentary on local fishermen, produced by independent filmmaker, Rob Maass.

The series also featured a water-quality monitoring workshop co-sponsored with the New York City Soil and Water Conservation District aboard the Schooner *Pioneer* at the South Street Seaport Museum. The final session in June featured a *Project Aquatic Wild* workshop co-sponsored by the New York State Department of Environmental Conservation.

The series helped increase teachers' knowledge of the Hudson River Estuary and current issues focusing on non-source point pollution, chemical pollutants, biodiversity, habitat restoration, conservation, and stewardship. Over 126 individuals attended these programs. An overwhelming response from teachers generated a waiting list for the water monitoring session, thus we plan to offer this session again in spring 2005. Series participants included teachers, faculty, students, high school students, and environmental educators. The program helped increase understanding of how the estuary functions as a habitat for fish and wildlife, and the vital ecological role it plays in our urban environment. Each session provided ample opportunity for teachers, scientists, students

and environmental educators to share resources and discuss ways in which they could integrate estuarine projects into their work.

Summer Program for Teachers

The summer program was designed as a field-based course that included seminar sessions, field trips, workshops, and independent work. In addition to stipends, participants were given the option to receive 3 graduate credits at NYU. Participants learned about the Hudson River Estuary through a series of experiences in the field. Sessions took place at The River Project, New York City Audubon, Clearwater Inc., Jamaica Bay Wildlife Refuge, Stuyvesant Cove, and the Institute of Ecosystem Studies in Millbrook, New York.

An advisory committee comprised of New York University faculty, representatives from non-profit sector, and government agencies provides program staff with valuable insights in developing field experiences and structuring program content. The advisory committee consisted of:

Pamela Abder, NYU Department of Teaching and Learning, Science Education
Mark Alter, NYU Department of Teaching and Learning
Laura Bartovics, NY/NJ Harbor Estuary Program
Shino Tanikawa, New York City Soil and Water Conservation District
Kim Tripp, Jamaica Bay Institute, National Park Service
John Waldman, Queens College
Robert Wallace, NYU Department of Teaching and Learning, Science Education

Teachers representing five schools in the New York area participated in the first summer pilot. This included two elementary schools, one middle school, and two high schools:

Public School 3
Trevor Day School
Intermediate School 89
Sheepshead Bay High School
Humanities Preparatory High School

Over a period of four weeks the cohort was exposed to a multitude of resources available to them in the New York metropolitan area. They experienced first-hand, how to conduct field studies, how to develop inquiry-based activities for their students, and how to engage in long-term projects using the Hudson River as a theme. Each teacher received a binder containing lesson plans, maps, and other resources for classroom use. Additionally they received a copy of *Heartbeats in the Muck* by John Waldman, as well as *Peterson's Field Guides: Atlantic Coast Fishes*.

The impact on their thinking and learning was evident in their willingness to engage in all the facets of the program including sessions that were optional. More importantly we witnessed their growth in the way they approached each session; ready to delve into the subject matter, and place themselves in the role of learners. This particular cohort

was exceptional in their motivation, willingness to learn new content, and grapple with difficult concepts as part of their own learning process.

Upon completion of the summer component, participants were asked to respond to a final course evaluation. Teachers reflected on their experiences and provided valuable insights to help further refine this program for future cohorts. Additionally they were asked to reflect on their own learning and how this program changed their ideas about teaching and learning. Perhaps the impact of this program is best expressed in the words of one of the middle school teachers who writes:

“I am quite sure that I have not felt the full impact of this program yet. This fall when I teach a Hudson River unit to my students I will continue to feel the full impact. The program far exceeded my expectations in every aspect. It was a remarkable experience to be a student of the Hudson.... My knowledge has grown ten-fold. The Hudson seemed more one dimensional in the past. Now the river is seen as a complex, living, breathing entity that is affected and effects the people living around it. It feels more important to me than in the past, important to learn about, to teach, to protect and to enjoy.”

One of the elementary teachers reflects on the transformational power of this summer experience and how the program increased her knowledge of subject matter:

“The most compelling aspect of the program was my introduction to the river’s wildlife. I had no idea about the number and variety of animals that live in and around the Hudson, nor was I prepared for the impact of observing them in their own world.... To me this was the key to my appreciating and understanding the Hudson River as a habitat for these fascinating and wonderful creatures. It made me realize that there is a world of difference between learning about the Hudson in the classroom and actually studying it right on the spot.

I realized how much I had learned this summer when I met with my colleagues, with whom I’ll be teaching our new Hudson curriculum next year, and thought, “Where do I even begin? Previous to this summer, I was only dimly aware of what an estuary is. It also struck me that every scientist we spoke to and every visit to the river entailed a discussion of the estuary at some point. It made me realize that understanding the unique qualities of the Hudson River estuary – as a mix of fresh and salt water and as a body of water responsive to the tides – was central to understanding every aspect of river life for the creatures who live in it and for the people who live along it.”

As far as her thinking about teaching and learning she concludes:

“I am convinced that a key component for my student’s learning about the Hudson is giving them the opportunity to observe the wildlife directly, in many different spots along the river, just as I did. New York City

children have so little contact with animals, except perhaps their own pets. Learning about wildlife is a fundamentally different experience.”

With ongoing technical support from the Wallerstein Collaborative, this cohort of teachers initiated environmental education curricula in their classrooms and engaged students in stewardship activities. Thus we have begun to develop a teacher education model that motivates teachers to bring about change in their classrooms.

Conclusion

Our interdisciplinary series brought together historians, biologists, ecologists, environmental educators, and classroom teachers. As a result, we have begun to develop a network of resources for classroom teachers targeted by this initiative who will teach their students about New York City’s estuarine environment and foster a stewardship ethic for our city’s natural resources.

To date, this cohort actively engaged in follow-up activities with their including a sail on the Clearwater, water-quality testing field trips, and participation in “Snap Shot Day” on the Hudson. Other curriculum activities are well under-way. We are confident that this model of teacher education effectively empowers teachers to take action and involve students in environmental stewardship.

This initiative enabled us to strengthen our partnerships with numerous environmental organizations and government agencies including the NY/NJ Harbor Estuary Program, New York City Soil and Water Conservation District, NYS Department of Environmental Conservation, South Street Seaport, Clearwater Inc, and numerous other groups that provided valuable resources and expertise to enrich our program. Through collaboration and education, we can increase environmental awareness that will lead to sound ecological practices to enhance and protect our local estuary.

For more information about this program, contact:

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