

Hudson River Estuary Teacher Education Project



Summer 2005



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 Project

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Introduction

The Hudson River Teacher Education program continues to provide us with an opportunity to work with classroom teachers in expanding their knowledge about the Hudson River Estuary and to encourage the development of field studies with their students.

In an effort to introduce teachers and students to the history, geology and ecology of the Hudson River Estuary, the NYU Wallerstein Collaborative for Urban Environmental Education has designed a professional development summer program for teachers. Funded in part by the New York City Environmental Fund, the program affords teachers the opportunity to participate in field-based projects, ongoing scientific research, restoration, and monitoring activities, all of which focus on our local estuary. It enables teachers to acquire the knowledge and skills needed to implement ecological studies in their classrooms and engage students in field-based stewardship projects such as water quality monitoring, habitat restoration, and other citizen-science programs. Though the program is only in its second year, it has shown tremendous potential for growth. In 2005 the number of teachers in the program more than doubled. Teachers enrolled in the program spanned a wide range of schools and grades, from kindergarten through college-level teaching.

The Program

The program kicked off with a presentation by noted author and ichthyologist, Dr. John Waldman. It also included, a water quality monitoring workshop at the South Street Seaport Museum, a trip up the river to Black Rock Forest to study watersheds, and a Harbor Herons Eco-Tour sponsored by the New York City Audubon Society. The highlight of the program included a sail on the *Hudson River Clearwater Sloop*. Each field component was specially designed to enrich the teachers' own knowledge of the Hudson River while simultaneously stimulating ideas about how they could integrate this new information into their own curricula.

At the end of the summer session, teachers expressed the importance of training teachers through hands-on field experiences. As one teacher noted;

“I was inspired. I felt like I gained some ideas and tools for incorporating real-world, meaningful experiences in my work with students. ... I feel better prepared to help my students, many of them struggling learners, understand, be inspired by, and find alternative resources for some of the academic work they will be tackling in the year ahead.”

We also used this opportunity to add new components to the program that were sparked by evaluations from the previous year's teachers. For example in an effort to include more Native American History we included a visit to the Smithsonian Museum of the American Indian along with a walking tour of Lower Manhattan with *Going Coastal* author, Barbara LaRoccca. On campus we developed a mapping session and incorporated a workshop using maps and stream tables developed by faculty members, Robert Wallace and Mary Leou.

This year the program was able to extend valuable internship experiences for two students, one undergraduate from NYU's Earth Science program and one student from the High School of Environmental Studies. Both of these students proved invaluable in assisting program staff in developing materials and resources. However, they also had the unique opportunity to participate in program events and field trips. This is something we hope to continue as the program continues to grow.

Participants

The second year attracted 19 teachers into the program, thus more than doubling our numbers from year one. Five participants were completing their masters in Science Education at NYU. Twelve were classroom teachers representing grades K-12 and two participants were from CUNY who teach adults in GED programs. The following schools and colleges were represented in our program this year:

George Wingate High School
High School for Environmental Studies
Junior High School 265- Susan S. McKinney
Middle School 394- Mary Bethune McLeod
Middle School 448- Brooklyn School for Collaborative Studies
New York City Lab School
Pacific High School
Preston High School
Public School 3
Public School 31- William Lloyd Garrison School
Trevor Day School
University Neighborhood High School
City University

Follow-up Activities

In the fall, many of the teachers were ready to begin their Hudson River studies in the classroom and the field. As part of our long-term commitment to participants in our program we work closely with teachers to help them launch their projects and involve them in other related activities throughout the year. While the degree of involvement varies with each school, most teachers are able to conduct several follow-up activities which include curriculum development, field trips, retreats, and other estuarine projects.

Snapshot Day

This year several of our teachers participated in Snapshot Day administered by the New York State Department of Environmental Conservation, Hudson Estuary Program. This data collection day is designed to celebrate the Hudson River Estuary and educate participants on the uniqueness of our estuary as part of the annual recognition of "National Estuaries Week." As part of this program, classes along the Hudson River collect data to create "a day-in-the-life" of the Hudson River from Troy to the New York Harbor. Each class takes part in data collection; observing wildlife and physical parameters and conducting water quality monitoring. This data is then sent to the Hudson River Estuary Program, where it is compiled and posted on their website.

This year teachers from 3 of our schools participated in the event. Several classes from Public School 3, Trevor Day School, and the High School for Environmental Studies participated in Snap Shot Day activities.

In December we invited Snap Shot Day scientist Dr. Margie Turrin, from Lamont Doherty Observatory and DEC's Steve Stanne, to present a workshop on how data from Snap Shot Day is used and how teachers can access the information on the DEC website. Teachers, faculty, and members of our advisory committee were invited to this winter enrichment session. Participants provided feedback on lessons being developed by DEC for their website and had the opportunity to learn more about data collection and analysis.

P.S. 3 Curriculum on the Hudson

We now have a total of 5 teachers from P.S. 3 that have completed our program. With support from our staff, P.S. 3 prepared for participation in DEC's Snap Shot Day. In 2004, 3 classes (80 students and 12 adults) participated and in 2005, 4 classes (110 students) participated in Snap Shot Day activities in spite of inclement weather. This year, two teachers set up brackish fish tanks in their classrooms to study estuarine species. Six teachers in the school are now engaged in Hudson River curriculum in their classrooms. Additionally they were able to take field trips to a variety of settings where students could study the river first hand. With NYCEF funds we were able to support P.S. 3's sail on the Clearwater. This was a culminating event for one of the classes that had studied the Hudson River. The school took additional trips to Edgewater, the NY Aquarium, Pier 26, the River Project, and the Christopher Street Pier. Additionally 5 classes participated in I Fish!, a NYS DEC Program.

New York University also places numerous student teachers in P.S. 3 who also benefit from exposure to environmental studies being implemented at the school.

Humanities Prep and Estuaries Live!

As part of the summer program, teachers were introduced to *Estuaries Live!* during our visit to Liberty Science Center in New Jersey. This is a New York Sea Grant and National Oceanographic and Atmospheric Administration (NOAA) program where schools can participate in an interactive web-cast featuring scientists and educators. Viewers can send in questions about the featured estuaries and get answers from experts on the air.

This year Estuaries Live featured the New York- New Jersey Harbor Estuary. Dr. Leou worked with the Estuaries Live planning committee and arranged for one of the Hudson River teachers and her students to represent New York City at this event. With support from the NY/NJ Harbor Estuary Program, Wallerstein staff were able to provide transportation for Cristina Trowbridge, and 20 of her students from Humanities Prep High School to Liberty State Park. The class was accompanied by Wallerstein staff: Amanda Levy and Mary Leou. Students were broadcast live while engaged in hands-on science at stations featuring water quality monitoring, beach clean-up and watershed modeling. It was a great start to their school year and the Hudson River curriculum Ms. Trowbridge has developed for her class. The broadcast can be seen at the NOAA website: <http://www.estuaries.gov/archivedprogram05.html>

Third Grade Retreat to Black Rock Forest

We now have two third grade teachers from Trevor Day School that have completed the Hudson River program. As a result, they have begun to revamp their third grade curriculum using the Hudson River as a theme across curriculum areas. Every year, Trevor conducts retreats for each of the grades at the beginning of the school year. This year the teachers worked with Dr. Leou to plan a retreat to Black Rock Forest as part of their Hudson River studies. All three third grade classes (and Mary Leou!) attended the overnight expedition to Black Rock Forest in October 2005. This was a unique opportunity to see first-hand how teachers incorporated their Hudson River experiences into their curriculum and how students respond to field-based learning. This was a remarkable experience that we hope we can offer to other participants in the program with additional funding.

Future Plans

This past summer we distributed our *Hudson River Teacher's Resource Guide*, garnered from our Hudson River Seminar Series over the past three years, and the Teacher's Summer Program. The document can now be downloaded from the projects section of our website at <http://education.nyu.edu/wallerstein>.

As the program continues to grow, we realize that it will become increasingly difficult to provide on-site support to teachers who would like to launch projects and field trips

related to the Hudson River. In order to meet teacher's needs we would like to incorporate two Environmental Education Interns into our program, thus providing year-round support to teachers. This support team will help build capacity in each of the schools to insure long-term continuity of field-based studies. In an effort to expand the program staff, we have submitted a proposal to EPA for additional funding for year 2006-2007.

The uniqueness of this initiative has sparked other non-profit groups and academic institutions to consider a similar model. In two years we have made great progress in developing a teacher education model that inspires teachers and exposes them to the wonders of our estuary. As one teacher noted:

"I have raised a sail! With my own eyes I've seen an isopod, a diving beetle, jelly fish, and exuvia, a red eft, and eyed-click beetle, and the elegant harbor herons."

Our teachers continue to work on fine-tuning their projects and bringing this experience into their classrooms. This spring will invite teachers present their own success stories at NYU's Sharing Our Success Conference.

The program has received recognition at New York University which featured an article in The Steinhardt School of Education Newsletter (Fall 2005) and an upcoming article will be featured in the New York Sea Grant publication, *Coastlines*.

In summer 2006 we hope to continue to offer this program to teachers and expand the program to pre-service teachers completing their studies at NYU. We look forward to continued collaboration with the Hudson River Foundation and their NYCEF initiatives.



A Day in the Life of the Hudson River: Kindergarteners from P.S. 3 participate in DEC's Snap Shot Day at Christopher St. Pier, NYC. September 2005.