

New York-New Jersey Harbor Education Program (NY/NJ Harbor Ed)
New York-New Jersey Harbor Estuary Program
2008 Stewardship Grant

FINAL REPORT- Submitted by the Education Program at the New Jersey Marine Sciences Consortium/New Jersey Sea Grant

Project Summary:

As a result of this award, the New Jersey Marine Sciences Consortium/New Jersey Sea Grant (NJMSC/NJSG) provided educational programming about the New York/New Jersey Harbor Estuary (NY/NJ Harbor Ed) to approximately 275 (or twelve classes of) New York and New Jersey students in grades 4 – 8 and their teachers, and provided a two-day professional development institute on the topic to an additional 58 New York City and New Jersey teachers. The project's overall goal was to increase stewardship for the Estuary among youth in New York City and urban New Jersey by involving them in a variety of educational experiences designed to get them more knowledgeable and connected to their own environment. This was accomplished by taking students out of the classroom and onto the Estuary for engaging, hands-on learning experiences with knowledgeable, experienced instructors and volunteers. Many students in New York City and New Jersey's urban areas, despite their close proximity to our waterways, often forget, or may have not even considered, that their everyday lives directly affect the environment and that their lives are affected and shaped by that same environment. This program demonstrated to students the role the Estuary has on their lives (as well other human activities throughout the region and the country) from their water supply to the foods and goods that they buy, to their family's jobs, lifestyles and livelihoods. The project also supplemented instruction in science and math, areas proven to be in need of improvement in New Jersey's and New York City's public schools as well as in the nation.

During this final quarter, the NJMSC/NJSG prepared for and conducted a two-day teacher training institute based on the student activities and curriculum materials developed during this project. The teachers received training directed towards enabling them to integrate Harbor Estuary-based lessons and activities into their classroom programs. A copy of the CD-ROM containing the agenda of the workshop and the materials developed and presented to the teachers at the workshop is available and will be mailed on request.

During this period, the NJMSC/NJSG also gathered, processed and tabulated evaluation data from participating students and teachers. The results of those evaluations are presented herein.

Project Evaluation:

This program was planned with the following objectives in mind:

- Students would experience first-hand the various interconnected ecosystems within the harbor;
- Students would get to practice methods of scientific inquiry;
- Teachers and students would increase their scientific vocabulary related to aquatic ecology and urban estuaries;
- Students would learn how to perform laboratory tests to measure the health of an ecosystem;
- Teachers and students would begin to understand the effects of environmental change on humans and other organisms;
- Teachers and students would become more aware of the estuary that surrounds them, the benefits they derive from it, and their role in it;
- Teachers and students would become familiar with practices of environmental stewardship and involvement (including both recreational and civic);

- Teachers would gain knowledge and experience about the Harbor Estuary that they can use to enrich their teaching across many classroom disciplines.

Instructors from the NJMSC/NJSG carried out both formal and informal assessment of student and teacher learning during NY/NJ Harbor Ed. Qualitative and quantitative feedback from teachers and students, standardized evaluations of NJMSC/NJSG instructors, and direct observations of student performance enabled the NJMSC/NJSG staff to assess the degree to which the program met its specified goals and objectives. The following assessments were conducted for this project:

- Student Worksheets: During each session, students completed worksheets, made predictions, recorded findings, and answered and asked questions designed to evaluate their understanding. This information helped to determine progress and was used to modify and guide future sessions.
- Student Informal Evaluations: Instructors talked with students informally to evaluate students' grasp of the content and their ability to make connections among the key concepts of the course.
- Pre- and Post- Survey, Assessment Activities and Quizzes: Teachers were asked to complete pre and post tests and implement other activities suggested by the NJMSC/NJSG with their students to assess student learning. For example, many teachers opted to have their student write an illustrated letter to the NJMSC/NJSG instructor which required four facts about the Estuary and two opinions about what they learned. A quiz was also administered before and after the entire program.
- Teacher Evaluations: Assessment of professional development is based on teacher feedback through post-workshop qualitative surveys. A survey was administered after the entire program. A summary of responses from these surveys is attached as an additional file.

Lessons Learned:

Two key lessons were learned:

1. **Present less material while on-board the ferry.**
2. **Prior professional development is critical for teachers wishing to participate in this program with their students.**

Based on student evaluation data gathered from especially the younger students we worked with, it could be concluded that too much information was attempted to be taught in too short a period of time, especially during the ferry program. For instance, course content during the ferry trip was divided between interpreting what the students were seeing outside the windows of the ferry, participating in several interactive activities about the Harbor (evenly divided between ports commerce and environmental topics) and learning about local marine species by observing live specimens. The latter activity, while absolutely worthwhile, made the strongest impression on the students, leaving less memory for the other topics and ideas presented on-board. In the future, the live animal observation will not be done while on-board the ferry, and will likely be conducted on land after the conclusion of the ferry program.

Another way of dividing up the material will be to conduct a more lengthy orientation to the day's program before boarding the ferry. This will require participating schools to report earlier to the departure site.

Professional development for participating teachers has proved critical for meaningful implementation of this program. The students of teachers who participated in professional

development prior to participating in this program (a professional development session on this program was conducted in June 2008) were more ready to learn and seemed to be less overwhelmed by the amount of material presented.

FUTURE OUTPUTS

Following the submission and acceptance of this final report, the NJMSC/NJSG will consider all tasks associated with this project complete.

All professional development materials developed and presented during the course of this workshop have been permanently posted on the NJMSC's website at njmsc.org and are accessible to all.

Tour of the NY-NJ Harbor Estuary aboard the NY Watertaxi.



Students learn about the NY-NJ Harbor Estuary and its port.



Interactive session on Estuary themes

Students learn about, and interact with Estuary species

