

## **Open Space Stewardship Program – Ken White and Melvyn Morris**

The Open Space Stewardship Program, a school, community and government partnership, is a direct outcome of the Department of Energy Academies Creating Teacher Scientists (DOE-ACTS) program. The essence of the program is to provide a partnering relationship for stewardship of public properties. By pairing school districts with local government agencies, teachers select a public property on which to have students collect and analyze data that is useful for managing the property. In effect, the students and teachers have become scientists and environmental stewards who have an appreciation for balancing the need to protect undeveloped property with the needs of the local community. Each of the partners has a vested interest: the schools are seeking to improve science education; the government agencies have limited resources and minimal scientific data to provide long-term stewardship over properties for which they are responsible; and the Laboratory is interested in developing the next generation of scientists, engineers, and technicians.

The Open Space Stewardship Program (OSSP) enables students to engage in activities to help solve real world problems within their local communities. Unlike an independently managed school-based program, the OSSP encourages cross-sharing of information among school districts, communities and local government agencies. The cornerstone of the OSSP is getting students into the field to make observations, collect data, analyze samples, and evaluate the data to provide improved stewardship of selected, undeveloped properties. Additionally, a website and database was developed (<http://www.greenosp.org/>) to provide a centralized place for students and teachers to enter, store and analyze their data.

Typical activities undertaken by students include water collection and analysis; plant and animal counts and species classifications; and DNA analysis of various plants and animals. In conducting these activities, the students use scientific methods and instruments to critically evaluate and integrate their new findings into issues of importance to the property and their community.

The program, implemented for students in grades 3-12 to date, also provides an opportunity for integration with language arts, civics, and community service activities. Importantly, the collection of real data, its utility in managing properties, and the interest of the local government agencies provides for an authentic and thus, more meaningful experience, for participating students.

As a capstone to the academic year, and to provide recognition of everyone's hard work, students, teachers, parents, land stewards, and elected officials are invited to a year-end celebration held at BNL. The first two celebrations were each attended by over 250 guests, including students, teachers, parents and elected officials. Students participated in poster sessions and gave power point presentations of their work. These annual events continually generate much excitement about the program.

The program has grown to include more than 100 teachers from 26 school districts and multiple agencies such as the Central Pine Barrens Commission, the Foundation for Ecological Research in the Northeast, New York Sea Grant, the US Fish and Wildlife Service and the New York Department of Environmental Conservation. A complete list of all participating school districts, along with project location and affiliated agency, is provided as Table 1.

In the relatively short tenure of the Open Space Stewardship Program, some extraordinary outcomes have been achieved, a few of which are described below:

- Patchogue-Medford High School research students, working with the Town of Brookhaven conducted an environmental study on an 80 acre parcel of town owned land that was zone for municipal use, made a presentation to the town board and had the property re-zoned as a nature preserve. The property is now known as the Fish Thicket Nature Preserve and is an educational resource for the school district.

- Fifth grade students in the Middle Country School District studied a local population of black squirrels and generated such enthusiasm that the community became involved and began informing the students of black squirrel sightings within the district. Students used GPS and Google Earth to plot locations of squirrels and nests. A report of the student's project was featured in an article in the New York Times.
- Several school districts have developed environmental elective courses as well as AP environmental science courses based on the OSSP program.
- McKenna Elementary School in Massapequa, New York, using a local nature preserve made the OSSP an integral part of the science program for all 650 students.
- Intergovernmental agency cooperation at its best is illustrated by Hauppauge High School AP Environmental Science students studying the ecological effects of moving a culvert at Sunken Meadow State Park and working with a biologist from the Long Island State Park Commission, a biologist from New York Sea Grant and biologists from the NY Department of Environmental Conservation .
- Fourth Grade students at Cutchogue East Elementary School made a presentation and presented a petition to the Southold Town Board to save Pipes Cove, an environmentally sensitive area, from development (see figure 4). Subsequently the board voted to acquire the property.

In closing, the OSSP program has involved students in citizen science with a purpose. As a direct outcome of a DOE sponsored teacher program, many teachers and students are now in the field, conducting research and providing valuable data for property management (see attached photographs). Ideally, students are being introduced to the world of scientific research in a fun, authentic manner that will give them an appreciation of science and motivate them to consider a career in science.

**Table. 1 - Schools Participating in OSSP and Their Project Location and Affiliated Agency**

- Bellport: *Wertheim Preserve – USFW*
- Bayport Bluepoint High School
- Brentwood: *Suffolk County Dept. of Parks*
- Center Moriches Middle School
- East Hampton High School: *Town of East Hampton*
- East Islip High School
- Eastport South Manor High School
- Eugene Auer Elementary School: *Village of Lake Grove*
- Farmingdale High School.
- Greenport High School
- Hauppauge High School: *Sunken Meadow State Park*
- Islip School District
- Islip Middle District
- Kings Park: *Nissequoque River State Park*
- Longwood Middle School: *Town of Brookhaven*
- Longwood Junior High: *School Town of Brookhaven*
- Longwood High School: *Town of Brookhaven*
- Mattituck – Cutchogue Elementary School: *Peconic Land Trust*
- Massapequa, McKenna Elementary School: *Massapequa Preserve*
- Middle Country High Schools: *Flax Pond*
- North Country Middle School: *Miller Place Pond - Brookhaven Town*
- Mt. Sinai Middle/High School: *Mt. Sinai Harbor - Brookhaven Town*
- Patchogue-Medford Bay Avenue Elementary: *Swan Pond*
- Patchogue Medford High School: *Fish Thicket - Town of Brookhaven,*
- Riverhead High School: *Peconic River - School District Property/*
- Sachem East High School: *L.I. Glacial Ridge Nature Preserve - Town of Brookhaven*
- Sayville High School: *Greens Creek*
- Shoreham Wading River Middle School: *Town of Brookhaven*
- Southampton High School: *Town of Southampton*
- William Floyd High School: *Wertheim Preserve - USFW*
- William Floyd Middle School: *Town of Brookhaven*



**Figure 1.** Students getting ready to collect samples.



**Figure 2.** Students collecting samples.



**Figure 3.** Students collecting samples.



**Figure 4.** Fourth Grade students from Cutchogue East Elementary School making a presentation to the Southold Town Board to save Pipes Cove.