



## Hope Floats

### Science Barge Models Sustainability, Feeds the Community

by Lydia Lichtiger

If you look out over the Hudson River from downtown Yonkers, you'll see a barge carrying some unusual cargo. The Science Barge, a floating farm docked near the Yonkers train station, serves as a sustainable urban farm and environmental education center.

#### Model of Urban Farming

A program of Groundwork Hudson Valley, the Science Barge is not only unique as an urban educational farm, but it's also distinct in its use of hydroponics, a highly efficient method of farming that uses a porous volcanic "rock wool" in place of soil, greatly reducing the amount of space required for farming and reducing water use by 75 percent. As a result, the Science Barge grows crops faster than a conventional farm and at seven times the quantity. In a city the size of Yonkers, where land is at a premium, the barge is a true model of urban farming.

Besides making it feasible to farm in an urban setting, the hydroponic growing system makes the barge sustainable because it requires fewer resources. The reduced need for water enables the barge to use rainwater alone to irrigate its crops. The barge also operates off the grid, using solar panels, wind turbines and biofuel to grow hundreds of pounds of produce without the use of carbon-emitting fossil fuels.

The Science Barge also employs aquaponics, a closed water-recycling system. In this system, the barge raises goldfish that secrete ammonium and nitrates as waste. The fish waste, which would build to toxic levels in conventional aquaculture, feeds the plants, which love this nutrient-rich water. And by taking up the nutrients in the water, the crops filter the water for the goldfish.

#### Floating Classroom

As a center for education, the barge serves both the local and global communities. In 2013, it educated 3,000 students from 112 schools, plus 4,500 weekend visitors from the New York metropolitan area and 15 countries. Visitors are welcome Saturdays and Sundays from noon to 6 p.m. for a suggested donation of \$5. The barge also offers open volunteer hours from 10 a.m. to noon each Sunday.

Beginning in July, the barge will again offer Art and Science Sundays, sponsored by the Junior League of Bronxville, NY. This 15-week program is designed to teach 4- to 10-year-olds about urban farming, nutrition and the environment. The program includes workshops on hydroponic mini-gardens, edible wild foods and craft projects.

This summer, the barge is undergoing two important structural changes. The first is the installation of a new bio-diesel generator, generously donated by Kubota USA after the harsh winter killed the barge's old one. It serves as a backup to the barge's wind turbines and solar panels, providing vital power when wind and sun are minimal.

The second change will be more conspicuous. An education pavilion with hand-cranked retractable walls will replace space in the greenhouse that is currently reserved for teaching during inclement weather. This newly freed up greenhouse space will greatly increase the barge's growing capacity.

#### Feeding the Community

Besides acting as a model for sustainable farming and as a center of education, the barge also serves its community by providing produce to local shelters and pantries (nearly 100 pounds in 2013) and to Groundwork Hudson Valley's Get Fresh Yonkers Farmer's Market (544 pounds in 2013).

The Get Fresh Yonkers Farmer's Market brings local, affordable produce to Yonkers. A large part of the produce sold at the market is grown by Groundwork's community gardens, which are planted, maintained and harvested by Yonkers residents. These citizen farmers are given a share in the market's CSA (Community Supported Agriculture co-op) in return for farm work. Another large portion of the produce sold there comes from the Science Barge's greenhouse; the rest comes from local farms.

Along with produce, the farmer's market also offers locally sourced honey, bread from local bakeries, and jam made by Yonkers high school students. The market is located by the Yonkers train station and operates Fridays from 3 to 7 p.m., June through October.

The barge is funded by grants from New York Power Authority, Con Edison, City of Yonkers, Domino Sugar and Friends of the Barge membership.

For more information, visit [GroundworkHV.org/programs/science-barge/](http://GroundworkHV.org/programs/science-barge/) or call 914.375.2151.

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