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Wyandanch

Community Advisory Board

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November Events

- Election Day, Nov. 3
- New York State School Environmental Health Conference, Nov. 4, Troy, NY
- 2026 Energy Forum: Empathy and Affordability, Hauppauge IBEW, Nov. 6, 8:30 am to 3:30 pm
- Coyotes on Long Island, Nov. 10, Dix Hills.

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New York State Children's Environmental Health Centers
LONG ISLAND

Building Climate Resilience and Food Security on Long Island: A Student-Led Action Plan

By Sanaya Halyard, Benjamin Mason and Jasmine Redden, Baldwin High School

We participated in the Youth Climate Challenge (YCCC) to design practical solutions for environmental issues affecting both Nassau and Suffolk counties. We designed **two core innovations** to transform unused spaces into productive, sustainable infrastructure. By connecting classroom research to community action, our work addresses the overlapping crises of climate change, stormwater management, and regional food insecurity.

Extreme weather events and rising temperatures create significant challenges for our local farms and communities. Severe storms, flash flooding, and prolonged droughts can damage crops, reduce agricultural yields, and disrupt regional food supply chains. Stormwater runoff can carry pollutants into local waterways, reducing water quality and contributing to soil erosion. We urgently need to implement sustainable agricultural practices to manage water and extreme weather impacts.

Long Island relies on its sole-source aquifer system for freshwater, including drinking water and water used for agricultural irrigation (U.S. Geological Survey, 2024). Climate change and rising sea levels can place additional pressure on groundwater systems, accelerating saltwater intrusion into freshwater aquifers and reducing water supplies for

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irrigation. At the same time, runoff containing pesticides, herbicides, and industrial pollutants can contaminate groundwater and surrounding soil, compromising water quality and agricultural productivity (Fisher et al., 2020). These challenges threaten groundwater quality and can create additional difficulties for agricultural production, highlighting the need for sustainable practices that protect both Long Island's aquifers and environmental health (Walter et al., 2024).

These challenges also affect Long Island's food security and equitable access to nutritious food. Long Island Cares reports that 313,800 Long Islanders are food insecure, and about 40% of food-insecure Long Island households are above the poverty level but still cannot keep up with the region's high cost of living (Long Island Cares, n.d.).

New York State's 2021–2023 health data show socioeconomic disparities by race in both Nassau and Suffolk Counties. In Nassau County, the percentage of families below poverty was 5.5% for Black families, 6.9% for Hispanic families, and 2.2% for White families. In Suffolk, the corresponding figures were 6.9%, 6.3%, and 3.1% (New York State Department of Health, 2026).

Building a more sustainable and resilient local food system on Long Island requires solutions that address environmental pressures while also improving equitable access to fresh, nutritious food for communities facing the greatest barriers.

The development of sustainable rooftop garden systems that expand local food production while making use of underutilized urban spaces and recycled materials offers one approach to address these interconnected environmental and social challenges.

Project One: Rooftop Gardens

Our proposed project will be introduced through a phased rollout across schools and community sites within our Baldwin school district, using a patented rooftop garden system as a foundation for sustainable food production and stormwater management. Initial pilot programs will be launched at selected schools to test, evaluate, and refine the system before broader expansion.

School gardens will be designed to collect rainwater for irrigation and promote sustainable water use, while reducing reliance on external water sources. The system can also incorporate recycled materials into garden structures and drainage components, creating a practical application of circular resource use. As the program expands, rain gardens can be installed near school buildings to manage stormwater runoff, improve water quality, and reduce flooding impacts.

Initial implementation sites may include Baldwin High School and elementary schools near sensitive water bodies, such as Baldwin Harbor. Student-led organizations can help guide program development, identify opportunities for improvement, and monitor performance. Collaborations among students, teachers, school administrators, families, local environmental organizations, and local businesses invites shared responsibilities for maintaining gardens and strengthening system performance.

By beginning with school-based pilot programs and gradually extending the system into surrounding communities, the project can strengthen local food production, water conservation, and environmental awareness.

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Rooftop gardens can transform unused spaces into productive environmental infrastructure by helping manage rainwater, reducing heat, supporting biodiversity, and producing food.

Project Two: Green Drift - A Modern Chinampas

Chinampas were developed by the Aztecs to grow crops on the shallow lake beds in the Valley of Mexico. Responding to a fall competition sponsored by NY Agriculture in Markets, we worked with fellow YCLC members, Samantha Desantos, Ariana Foster-Guy and Jada Benjamin created a multipurpose farming system.

We named our prototype, "Modern Day Chinampas." It incorporates local flora, *Salicornia*, and plastic waste from school recycling bins. Plastics are used to create lightweight and strong ecobricks. These are also used internationally to construct inexpensive buildings. Ecobricks, *Salicornia*, and other simple materials such as five gallon buckets, allowed us to create a floating garden for salt water areas. The *Salicornia* can remove chemicals and dissolved pollutants from the water (Khalilzadeh et al., 2021). *Salicornia* is a genus of native saltwater-tolerant plants and grows in Long Island salt marshes.

Our system can purify water and provide an edible plant that can be dried into a salt, used as a topping in salads, or fried with garlic to create an asparagus substitute.

Sources

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