



**A**board the BioBus, students peer into research-grade microscopes, analyzing the tiniest and most outlandish looking marine invertebrates imaginable. They take pictures, write observations, and attempt to identify and classify the samples. They share their findings with the whole class through a complement of stereomicroscopes complete with HD cameras and display screens, provoking discussion, astonishment, and occasionally screams.

BioBus scientists engage the community with hands-on science exploration at solar-powered mobile labs and two community labs in Manhattan, where students can discover the natural world for themselves. BioBus staff find creative ways to translate

their extraordinary research into digestible, hands-on educational projects for students, teachers, families, and everyone in the neighborhood.

BioBus Inc.'s flagship program is a mobile science lab built on a 1974 public transit bus that visits schools all over New York City, every day. Over 30,000 students boarded the BioBus last year. Once aboard, students can use the high-powered microscopes, interact with scientists, and experience the excitement of hands-on science practice.

In addition, the nonprofit organization operates a community lab in the Lower Eastside Girls Club Community Center (BioBase LES). BioBus has had a long-standing collaboration with the Lower East Side Ecology Center (LESEC), developing curriculum in urban and marine ecology of the East River and providing after-school programs to the LES community. They recently worked together on analyzing which materials attract the most abundant and diverse marine fauna, and quantifying the real effect of oyster filtration on river water quality.

### BioBase Harlem

BioBus has partnered with Columbia's Mortimer B. Zuckerman Mind Brain Behavior Institute to bring new educational opportunities to schools and community centers throughout Upper Manhattan, Washington Heights, Inwood, and the Bronx. BioBase Harlem will be located in the new Jerome L. Greene Science Center, which will house many of



Students use microscopes to examine small freshwater crustaceans to understand anatomy, physiology, and ecology.

*Continued page 5*

## EEAC NEWS

### Steering Committee Meetings

Please visit the EEAC website at [www.eeac-nyc.org](http://www.eeac-nyc.org) for meeting locations or contact an EEAC Steering Committee member. Steering committee meetings are open to anyone interested in learning about environmental education in New York City and sharing information about special programs and projects.

### Newsletter Deadlines

If you would like to submit an article for the newsletter, please email it as a Microsoft Word attachment to [KimE@dep.nyc.gov](mailto:KimE@dep.nyc.gov).

The newsletter deadline is the first Monday of Feb., May, and September. We would love your ideas!

### Newsletter Committee

Layout/design: Lynn Cole      Kim Estes-Fradis  
Joy Garland                      Editor: Mary Most

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The Environmental Education Advisory Council of New York City, EEAC-NYC, is the only nonprofit organization with the sole purpose of promoting and supporting outstanding environmental education in New York City schools and other centers for learning.

## ENVIRONMENTAL EDUCATION ADVISORY COUNCIL

Judith Hutton

The New York Botanical Garden

Teacher Training

2900 Southern Boulevard

Bronx, NY 10458

[www.eeac-nyc.org](http://www.eeac-nyc.org)

This newsletter is a publication of the Environmental Education Advisory Council (EEAC), a voluntary organization of educators, classroom teachers, administrators and other professionals in active support of quality environmental education.

### EEAC OFFICERS

Judith Hutton, Chairperson

Brittany DiLeo, Treasurer and Membership Secretary

Shig Matsukawa, Secretary

### STEERING COMMITTEE

Lynn Cole, Children's Library Discovery Center

Brittany DiLeo, NYS Dept. of Environmental Conservation

Kim Estes-Fradis, NYC Dept. of Environmental Protection

Joy Garland, Stuyvesant Cove Park Association

Judith Hutton, New York Botanical Garden

Mary Leou, New York University

Shig Matsukawa, Food Waste Recycler

Mary Most, NYC Dept. of Sanitation

Mike Zamm, Teacher Environmental Education Preparation T.E.E.P.

### STAY IN TOUCH!

Members, keep up with the latest EEAC news on [EEAC-NYC@googlegroups.com](mailto:EEAC-NYC@googlegroups.com)

If you would like to join the listserv contact Carol Franken at [carolfranken@gmail.com](mailto:carolfranken@gmail.com)



EEAC NYC



@eeacnyc





## CHAIR'S MESSAGE

Welcome to another exciting issue of the EEAC newsletter! This will be my last message as Chairperson of EEAC. I want to thank everyone on the Steering Committee for the hard work and leadership they exhibit to support the important work we do! I feel honored to be part of an organization like EEAC.

I want to welcome Brittany DiLeo as our new Chairperson. Brittany has been a member of EEAC since relocating in 2014 when she accepted a position as the Regional Environmental Educator for the New York State Department of Environmental Conservation in New York City. She has a rich background in Environmental Education, both personally and professionally. In her own words, she “fell in love with the field of environmental education, imparting my sense of wonder and excitement about nature to students of all ages.” I look forward to working alongside her in a new and exciting capacity to support the field of EE!

As EEAC continues to look to the future, we want to introduce you to four new and very enthusiastic Steering Committee members. Check out their bios on page 4. We are excited to work with them as EEAC continues to grow! Join us at an upcoming program or Steering Committee meeting, volunteer for a committee, or reach out to share information about your work with the larger EE Community.

**We can't wait to hear from you!**



## Judith

Jedeth Hutton

## From incoming chair, Brittany DiLeo



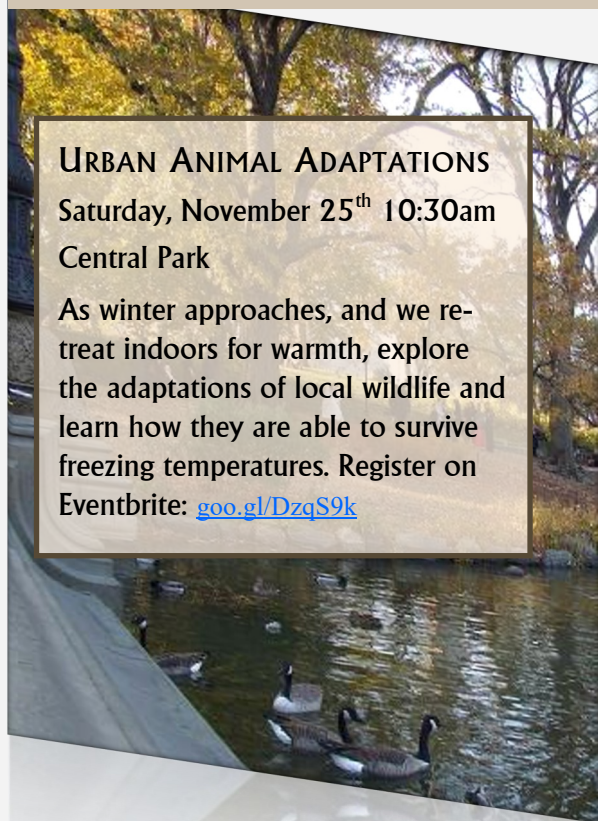
## Brittany

I am honored and excited to serve as chair of EEAC! I'd like to thank Judith for her leadership and the entire EEAC community for the work they do. The people I've met through this organization have helped me grow as a profes-

sional and as an educator. I can't wait to dig in and give back.

EEAC is at the beginning stages of many exciting new projects and now is the perfect time to get involved. Whether you want to develop a new skill or contribute your seasoned expertise, I encourage you to join us at our next Steering Committee meeting on December 6th. I look forward to hearing your ideas and working together to strengthen the environmental education field.

## EEAC EVENTS



## URBAN ANIMAL ADAPTATIONS

Saturday, November 25<sup>th</sup> 10:30am  
Central Park

As winter approaches, and we retreat indoors for warmth, explore the adaptations of local wildlife and learn how they are able to survive freezing temperatures. Register on Eventbrite: [goo.gl/DzqS9k](https://www.eventbrite.com/e/2023-winter-wildlife-walk-tickets-70404428207)

# Meet the new members of the 2018 EEAC Steering Committee!

**ROBERT WALLACE** is currently the head of the science education program at New York University. He is a marine biologist who has created and led an environmental research center for teachers and their students in East Hampton. In addition, he is founder and former administrator of an NYCDOE environmental education themed K-8 school. He is excited to serve on EEAC's Steering Committee.



**RAY PULTINAS** taught English at DeWitt Clinton High School in the Bronx for 25 years and also served as the school's Sustainability Coordinator. He continues to consult and work part-time gardening, farming, maintaining fruit trees, school-wide recycling, healthy school food programs, composting, student internships, community partnerships, youth markets, and curriculum design. Ray is presently collaborating with a team of designers, architects, environmentalists, and artists on the James Baldwin Outdoor Learning Center and starting a nonprofit that will strive for project based solutions at the juncture of food-, environmental-, and social justice through community engagement and sustainable practices. He blogs on sustainability in schools [[wittseminar.blogspot.com](http://wittseminar.blogspot.com)] and has presented to both local and national audiences.



**BONNIE RALSTON** is the Director of Programming and Development for NYC Parks Education and Wildlife Unit. Prior to joining NYC Parks, Bonnie worked for the Central Park Conservancy, where she was responsible for the development, facilitation, and evaluation of the Conservancy's place-based Family Discovery programs, in addition to managing the Conservancy's service learning programs for families and school groups. Previous positions with Audubon New York, NYC Soil & Water Conservation District, GrowNYC, The Horticultural Society of New York, and New York State DEC have afforded Bonnie opportunities to engage with student and families in environmental education programs throughout the city.



**SARAH PIDGEON** is the K-12 Education Director at Solar One. Prior to joining Solar One, Sarah worked as an educator for several years at the Center for the Urban Environment in Brooklyn, where she taught classes in Urban Design and Ecology. Sarah is currently pursuing her MBA in nonprofit management and sustainability at Marlboro College in Vermont. When she is not busy teaching about all things sustainable, Sarah enjoys riding her bike, cooking, and drawing.

*Thank you and Welcome  
Robert, Bonnie, Ray and Sarah!*



(Biobus continued from page 1)

Columbia's premier neuroscientists, including Nobel prize winners Richard Axel and Eric Kandel.

In this new space, BioBus staff brings together concepts from various fields of biology, including neuroscience, physics, and ecology. Conveniently located one block from the West Harlem piers, BioBus hopes to take techniques and strategies learned from the East River exploration and find new partners and collaborations in their exploration of the Hudson River. This new space opened on June 28 and is fully operational.

BioBase Harlem will host formal after-school, weekend, and summer programs, as well as high school and college internships for students. They will also offer field trips for individual science classes from schools throughout New York City. These programs offer an inquiry-based, interactive science experience to students.



Community members using microscopes and exploring in the BioBase Harlem Education Lab.

Scientist Latasha Wright, PhD, "It's a hands-on learning experience, where there are more questions than answers and we solve problems by incorporating everyone's unique perspective. We create tomorrow's leaders and scientists by providing the space, equipment, and guidance to unleash the energy, curiosity, and intelligence inherent in every student."

What's next for the BioBus? Besides expanding their footprint in West Harlem and increasing the volume of programs, BioBus Inc. is planning to unveil a new mobile lab by the end of the year to help expand the reach and impact of BioBus programming.



Sidewalk science

Bring Biobus to your community:  
[www.biobus.org](http://www.biobus.org)  
646-580-9444  
[learning@biobus.org](mailto:learning@biobus.org)

## ***River Works: Hudson River South Estuary Renewal Initiative***

The NYU Wallerstein Collaborative for Urban Environmental Education has been awarded a grant from NYC Parks Department to develop a stewardship education initiative on the North Shore of Staten Island as part of the Hudson River South Estuary Renewal Initiative.

In partnership with New York City Parks Department, Dr. Mary Leou and Tania Goicoechea will lead this stewardship education initiative, called **River Works**. It will involve the development and implementation of stewardship activities in under-served communities and parks along the North Shore including Sung Harbor, Richmond Terrace Wetlands, Faber Pool Park, Alice Austen Park, Heritage Park, and the North Shore Esplanade.

The project will connect schools and the community with the North Shore parks, fostering a sense of ownership and stewardship. Activities will focus on water access and estuary education, engaging students and volunteers in wildlife surveys, water quality monitoring, tree surveys, invasive plant removal, beach and park cleanups, and planting of native plants.

Concurrently, the Collaborative will develop a citywide curriculum for elementary school grades on stewardship education on the Hudson River Estuary. Two professional development workshops for teachers will be offered to disseminate the curriculum and begin implementation.

## Education Resources

### EXPLORABLE PLACES ([www.explorableplaces.com](http://www.explorableplaces.com))

Educators can now access NYC field trip options all in one place! [Explorable Places](http://www.explorableplaces.com) allows teachers to search online for field trips by borough, subject matter, grade, costs, and more. Find great learning experiences outside the classroom and book field trips and other classroom resources directly through the website. For example, schedule a trip to DEP's Visitor Center at the [Newtown Creek Wastewater Treatment Plant](#).

### NEW YORK CITY'S WATER STORY: FROM MOUNTAIN TOP TO TAP MAP

NYC DEP is pleased to offer you a beautiful new wall-sized map for your classrooms. This 36" x 40" map, *New York City's Water Story: From Mountain Top to Tap*, highlights the flow of water from watersheds and reservoirs, through aqueducts to New York City. [Learn more and receive a teacher's guide](#). We also have 11x17 copies of the map to use in your classroom, for mapping exercises; we would be happy to provide you with a class set. To order, please contact [educationoffice@dep.nyc.gov](mailto:educationoffice@dep.nyc.gov).

### DEP'S ONLINE EDUCATION MODULES

DEP's online education modules provide resource information to educators to help students learn about the latest environmental issues. The three modules offer background information about the subject, lesson plans, activities and worksheets, along with additional complementary resources.



[Green Infrastructure](#)  
[Cease the Grease](#)  
[Sound and Noise](#)

**DEP's Weekly Pipeline** is the agency newsletter for all DEP employees and for environmental stakeholders who want to keep in the loop on what DEP is up to. *Weekly Pipeline* publishes every Tuesday, and features updates on current news, safety reminders, agency accomplishments and milestones, and interesting agency statistics and historical facts. [Sign up](#).

## ADDITIONAL FIELD TRIPS

### MUSEUM OF THE CITY OF NEW YORK ([www.mcny.org](http://www.mcny.org))

The [New York at Its Core](#) museum exhibition captures the human energy that drove New York to become a city like no other. Through historic objects and images from the Museum's rich collections, as well as videos, photography, and interactive digital experiences, MCNY welcomes you to dive deep into the city's past and create your own visions for its future. In addition, [To Quench the Thirst of New Yorkers: The Croton Aqueduct at 175](#) is a new exhibition that traces the history of this remarkable water supply system. [Learn more about education programs and field trips to the museum](#).

### CHILDREN'S MUSEUM OF MANHATTAN ([cmom.org](http://cmom.org))

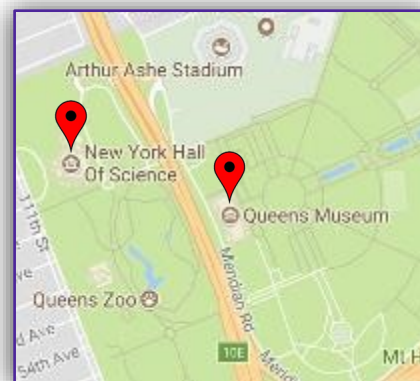
Dive into [Dynamic H<sub>2</sub>O](#) and explore NYC's water supply system at the Children's Museum of Manhattan. This new outdoor water exhibit offers children and their families a fun place to cool off while they discover the source of their water and how it is delivered to our homes and schools.

### NEW YORK HALL OF SCIENCE ([nysci.org](http://nysci.org))

[Connected Worlds](#), a groundbreaking exhibition at the New York Hall of Science, immerses visitors in a fantastical universe where they can affect the health of six distinct biomes through gestures, movements, and decisions they make about the balance of the overall environment. All of the biomes share a common resource: water.

### QUEENS MUSEUM ([www.queensmuseum.org](http://www.queensmuseum.org))

After more than 70 years out of the public eye, the sculptured scale-model of New York City's Water Supply System comes back to the Queens Museum. The 540 square-foot model represents the living, working landscape of the watersheds that supply New York with one billion gallons of drinking water each day! [A Watershed Moment: Relief Map of the New York City Water Supply System](#).



# My Typical Day Water Use Calculator



Activity: Record and calculate how much water you use approximately, in one day.

## Flushing the toilet

Many toilets use 5 gallons each flush. Water-saving, high efficiency toilets use 1.28 gallons each flush.

How many times do you usually flush the toilet in a day?

X

How much water does your toilet use for each flush?

gallons

=

Total gallons

## Brushing your teeth

Brushing your teeth with the water running uses about 4 gallons. Turning the water off when you're not rinsing uses less than a quarter or .25 gallons.

How many times do you usually brush your teeth in a day?

X

How much water do you use each time you brush your teeth?

gallons

=

Total gallons

## Washing your hands

Washing your hands or face with the water running uses about 4 gallons. Turning the water off saves 3 gallons, using only 1 gallon each time you wash up.

How many times do you wash your hands in a day?

X

How much water do you use each time you wash your hands?

gallons

=

Total gallons

## Washing dishes

Washing dishes with the water running uses about 4 gallons a minute. Filling the sink or washing dishes without water running uses only 5 gallons.

How many minutes do you usually spend washing dishes in a day?

X

How much water do you use each time you wash dishes?

gallons

=

Total gallons

## Taking a shower

A non-water-saving showerhead uses 5 gallons a minute. Water conserving showerheads use 2 gallons each minute.

How many minutes do you usually spend in the shower?

X

How much water does your showerhead use each minute?

gallons

=

Total gallons

## Approximate total daily water use

Add up each section to calculate your total water usage for a typical day.

+

Total gallons





Answer these questions based on your daily water use calculations.



Can you think of any other ways you use water that were not included here?

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Which of your daily activities uses the most water?



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Were you surprised by your results?



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What are some ways you can reduce your water consumption?



---

---

Is your average daily water use total higher or lower than the New York City average of 75 gallons a day?



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**T**ry this online calculator. GRACE Communications Foundation's free [Water Footprint Calculator](#) (also available in [Spanish](#)) illustrates how everyday actions – from taking showers to buying groceries – impact water use.

Answer some simple questions about your daily routines, and you'll see customized results with interactive graphics. The calculator accounts for the "direct" water we use from the tap, and also the "virtual" water it takes to produce the food we eat, the energy we use, and the products we buy. You can change your answers to see how that affects the results.

There are also over 100 links to the [GRACE Communications Foundation](#) website where you'll find detailed water saving tips and ideas for changing behavior. For technical questions about the calculator, peruse the detailed 30-page methodology.

[Water Footprint Calculator](#) offers an interesting tool to teach students why and how to change their water footprint.



# ENVIRONMENTAL EDUCATION EXPO

EXPLORE NEW YORK CITY OUTDOORS!



## LEARN ABOUT IN-CLASS PROGRAMS & FIELD TRIPS

Composting | Growing Oysters | Overnight field trips  
Fishing & seining | Gardening | Harvesting solar power  
Using the city's parks as a classroom  
Citizen science programs | Professional development  
& **MORE**

THIS EVENT IS BROUGHT TO YOU BY:



Office of  
Sustainability



NEW YORK CITY  
SOIL & WATER CONSERVATION DISTRICT



THE RIVER PROJECT

In partnership with EEAC & NYSOEA

PLEASE RSVP

<https://2017eeexpo.eventbrite.com>

TUESDAY, DECEMBER 12, 2017

NYU KIMMEL CENTER, 4th fl

5:00-7:00PM



# ADVANCED INQUIRY PROGRAM

**IGNITE ECOLOGICAL & SOCIAL CHANGE**

## Chicago

CZS/Brookfield Zoo

## Cincinnati

Cincinnati Zoo & Botanical Garden

## Cleveland

Cleveland Metroparks Zoo

## Denver

Denver Zoo

## New York

WCS/Bronx Zoo

## San Diego

San Diego Zoo Global

## Seattle

Woodland Park Zoo

**APPLY BY  
FEB 28TH**

Study at the zoo as you earn your master's from Miami University!

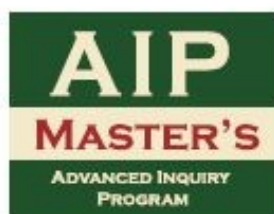
*Photo: Golden lion tamarin, a species brought from the brink of extinction by zoos, scientists, governments, and communities working together.*

**AIP**

**MASTER'S**

ADVANCED INQUIRY  
PROGRAM





Apply at [AIP.MiamiOH.edu](http://AIP.MiamiOH.edu)



### THE AIP MASTER'S DIFFERENCE

The Advanced Inquiry Program (AIP) offers a ground-breaking master's degree that combines web-based graduate courses through Miami University with face-to-face experiential learning and field study at premiere community learning institutions nationwide. AIP students learn with peers and faculty nationally while also working directly through their local AIP Master Institution to improve their communities through shared investigation and action.

### OUR AIP MASTER INSTITUTIONS

- Chicago Zoological Society/Brookfield Zoo – Chicago
- Cincinnati Zoo & Botanical Garden – Cincinnati
- Cleveland Metroparks Zoo – Cleveland
- Denver Zoo – Denver
- Wildlife Conservation Society/Bronx Zoo – New York
- San Diego Zoo Global – San Diego
- Woodland Park Zoo – Seattle

### SAMPLE GRADUATE COURSES

AIP master's students earn 35 total credit hours: 21 credit hours of courses that combine web-based instruction with the excitement of experiential learning and field study on-site at your AIP Master Institution + 14 credit hours of AIP core courses that occur on the web.

- Foundations of Inquiry
- Conservation Science & Community
- Urban Ecology
- Global Biomes
- Project Design & Assessment
- Issues in Evolution
- Biology in the Age of Technology
- Graduate Research: Conservation Innovation

AIP students also have the option to integrate international field study into their coursework by participating in an Earth Expeditions course in Africa, Asia, Australia, or the Americas (7 credits from Earth Expeditions courses can count toward the AIP master's degree).

### PROJECT DRAGONFLY AND THE AIP

Project *Dragonfly* reaches millions of people each year through inquiry-driven learning media, public exhibits, and graduate programs worldwide.

Project *Dragonfly* is based in the biology department at Miami University in Oxford, Ohio. Established as a state university in 1809, Miami is one of the eight original Public Ivies and has a distinguished record of excellence in research and teaching in science and science education.



### Advanced Inquiry Program Details

#### Why Participate?

The AIP is based on the principle that education should extend beyond the classroom, and that students should make a difference—not just after graduation, but now, as a basic function of education itself. AIP students join a coalition of extraordinary educators and conservationists to improve neighborhoods, schools, businesses, and ecosystems, while advancing national education standards through research-based practices.

The AIP master's can be completed part-time while working. It's designed for educators and a broad range of professionals from non-profit, business, and government settings.

#### Who Is Eligible?

Enrollment is open to applicants who hold a bachelor's degree—regardless of academic major or profession—and who are able to travel to an AIP Master Institution. Coursework occurs online with experiential learning at affiliated institutions.

#### Degree Options

Applicants elect to enroll in either a Master of Arts in Teaching (MAT) degree in the Biological Sciences or a Master of Arts (MA) degree in Biology. MA and MAT candidates go through the Advanced Inquiry Program together.

Miami University is fully accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools (please see <http://miamioh.edu/oue/accreditation/>).

#### Costs

To support involvement by a broad range of educators and conservation professionals nationally, Miami University offers significantly reduced tuition for all classes in pursuit of the web-based AIP degree.

#### Applying Online Is Easy!

Apply at [AIP.MiamiOH.edu](http://AIP.MiamiOH.edu) by February 28

Master's program applicants will also apply to Miami University's Graduate School; best to start this process as early as possible.





## MEMBERSHIP APPLICATION



☐ New member    ☐ Renewal    Date \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Organizational Affiliation \_\_\_\_\_

Home Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Organization Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Home phone \_\_\_\_\_

Business phone \_\_\_\_\_

Email \_\_\_\_\_

### MEMBERSHIP CATEGORY

☐ \$30 Individual    ☐ \$75 Organization

☐ \$250 Individual Life Membership

Please make checks payable to "EEAC."

Mail completed form and check to:  
Attn: Judith Hutton  
The New York Botanical Garden  
Teacher Training  
2900 Southern Boulevard  
Bronx, NY 10458

Members are welcome at EEAC Steering Committee meetings, held every 3rd Wednesday of the month. Check our website for these and other events.

[www.eeac-nyc.org](http://www.eeac-nyc.org)

EEAC is a 501-(c)3 organization.



### ENVIRONMENTAL EDUCATION ADVISORY COUNCIL

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