

Lamont-Doherty Secondary School Field Research Program

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Partnering Schools:

Young Women's Leadership School
Curtis High School
The New York Harbor School
Manhattan-Hunter Science HS
Washington Heights Expeditionary Learning School
Pan-American International HS

Field Sites:

Piermont Marsh
Governors Island
Bayonne to Brooklyn track
Bronx River
Oyster reefs:
Jamaica Bay
Hastings
Bay Ridge Flats
Soundview Park

Funding

Private foundations:

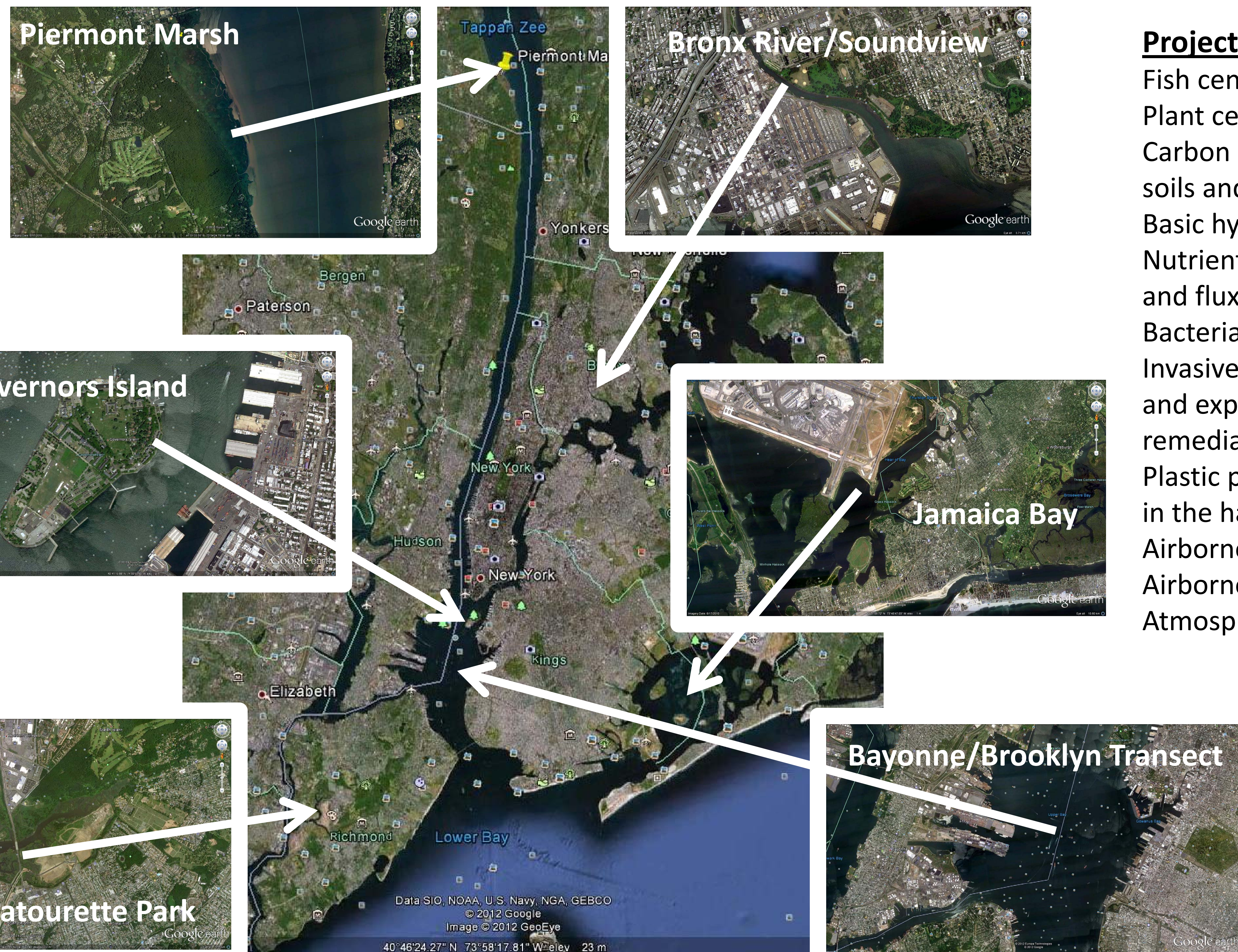
- Toyota
- Toshiba
- SSP (Intel)
- Urban Assembly
- Futures and Options

Federal Grants:

- GK-12 Fellowship
- GeoEd Grant

Guiding Principles

- Real science problems; real surprises.
No canned experiments with known outcomes.
- Rigorous sample collection, measurement and analysis.
- Maximize time in the field and laboratory.
- Produce publication-quality data.
- Start small, keep projects and goals realistic, expand as capacity increases.
- Paid summer internships to facilitate participation by poor and working class students.
- Summer pay for teachers.
- Pay for techs. Pro bono time from scientists.
- Start with a wide range of achievement and skill levels.
- Work with non-competitive-entry (catchment) schools.
- Allow time for relationship building: student-student, student-scientist, teacher-student, etc.
- Focus on products (data, presentations, articles, etc.).
- Employ experienced students as leaders.
- Support students' college applications
- track students through their first two years of college.
- No testing, no high-stakes hoops.
- Support participants through whatever academic or personal issues arise.



Projects:

Fish census.
Plant census.
Carbon content of marsh soils and shallow cores.
Basic hydrography.
Nutrient concentrations and fluxes.
Bacteria counts.
Invasive reed succession and experimental remediation plots.
Plastic particle pollution in the harbor.
Airborne particulates.
Airborne black carbon.
Atmospheric CO₂.

Internal Partners:

Lamont-Doherty Earth Observatory/Department of Earth and Environmental Sciences
Center for Environmental Research and Conservation/Dep't of Ecology, Evolution and Environmental Biology
Earth Institute/Columbia University

The Problem:

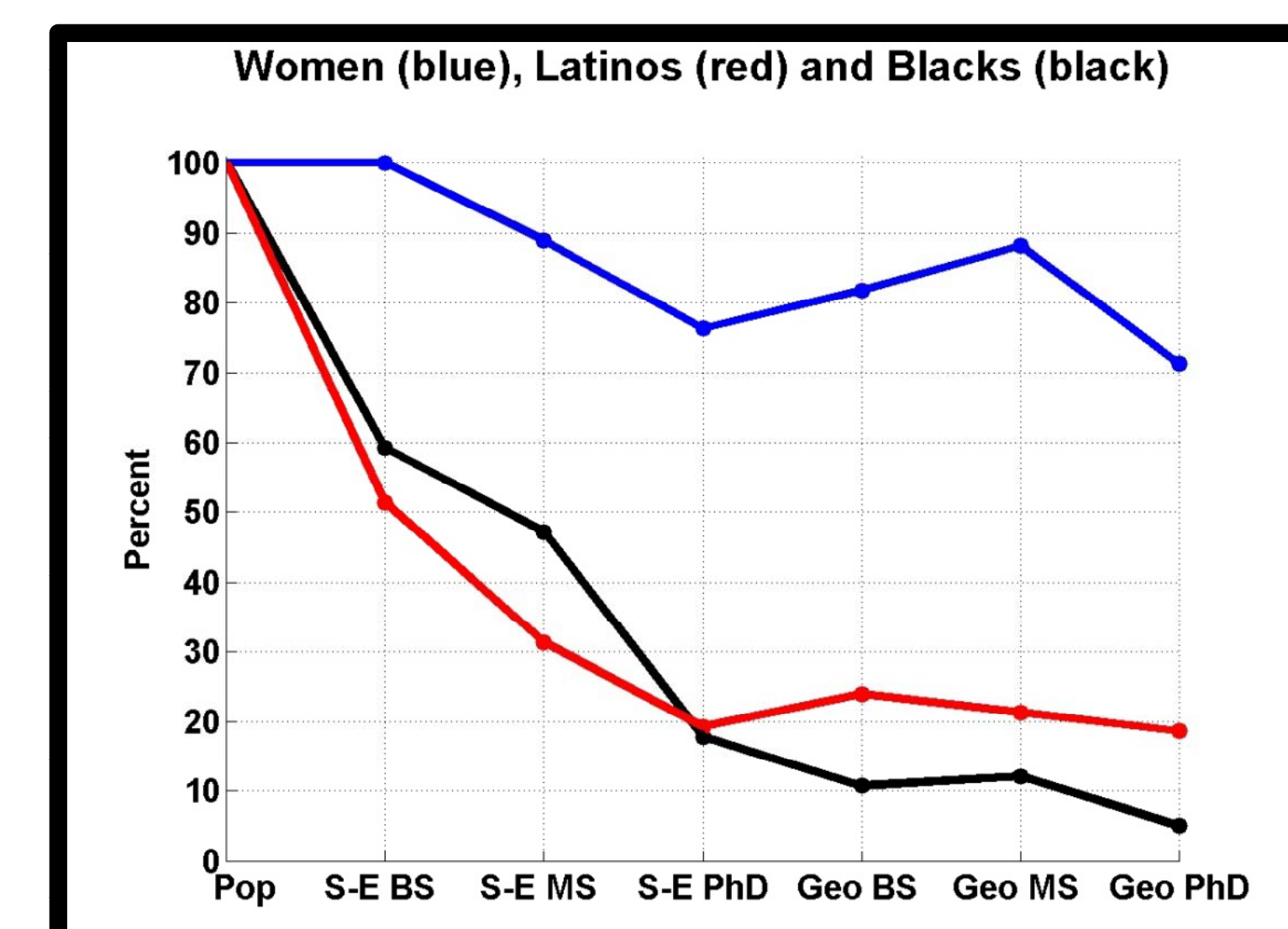
There is very low recruitment of economically disadvantaged ethnic groups into our fields.

There is low promotion and retention of women.

In New York City: only 2 of every 5 Black or Latino students receive a diploma that is useful for college entry!

	2006	Black	Pct	Hispanic	Pct	Women	Pct	Total
21 Yr. Olds	770,000	14.0	825,000	15.0	2,777,500	50.5	5,500,000	
S/E BS	39,301	8.3	36,460	7.7	239,300	50.5	473,500	
S/E MS	7,953	6.6	5,664	4.7	54,100	44.9	120,500	
S/E PhD	748	2.5	867.1	2.9	11,500	38.5	29,900	
E/A/O BS	60	1.5	145	3.6	1,650	41.3	4,000	
E/A/O MS	30	1.7	55	3.2	768	44.5	1,727	
E/A/O PhD	5	0.7	21	2.8	270	36.0	750	

S/E = Science and Engineering
E/A/O = Earth/Atmospheric/Ocean Sciences



Percent receiving degrees, divided by percent of each group in the population as a whole.



1st Place: NYC SEF



SSFRP Students at GSA

Participants since 2006:

- Approx. 100 students
- Approx. 10 teachers.
- 6 graduate students.
- 6 CU scientists
- 6 NYC public schools.
- 2 school networks: "Young Women's" and "Urban Assembly".
- 50% young women.
- > 90% Title I/III.

The Results:

- All participating students have graduated.
- All participating students have gone to college.
- About 50% of participating students are STEM majors.
- Three schools have instituted field research courses.
- Two have set up marine biology laboratories.
- 6 schools participate in a N.Y. City-wide research wiki.
- Two participants received top prize at the NYCSEF.
- Participant presentations at: GSA, SWS, CU, NOAA.
- About a dozen participants now have full scholarships to top colleges (Smith, Dartmouth, Wellesley, W&M, etc.)