

**Introduction.** With over 8 million people and boasting the Nation's largest regional economy, New York City should be an example of sustainability in the world. However, quite the opposite is true. When we consider the elevated levels of Carbon Dioxide and Particulate Matter in the air or the low levels of Oxygen in the Harlem River it becomes evident that somewhere along the line the people of New York got lost in the frantic pursuit of money and turned their back on their health. Harlem in particular has been targeted the worst. For years now asthma rates in Harlem have been increasing alarmingly because of the high levels of Particulate Matter produced by the same vehicles that bring us our goods. In a sense, we are poisoning ourselves in order to obtain the things we need. But are there no other alternatives that can bring back the healthy air our community needs? Can't we stop flushing contaminants into our Rivers and blocking them off from our use in order to get what we need to live? The answer is YES. There are things we can do but it will take a lot of good choices and will to change the minds of those who are set in their ways. This project will propose some solutions that are revolutionary. But if we're in the greatest city of the world then we can all pull together and change it to the healthiest city on Earth.

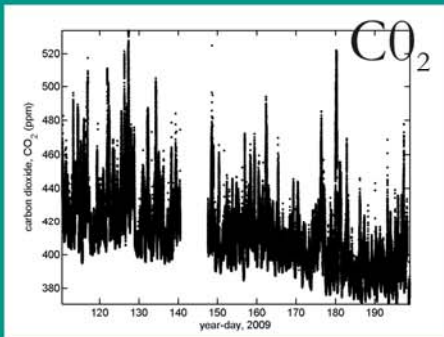
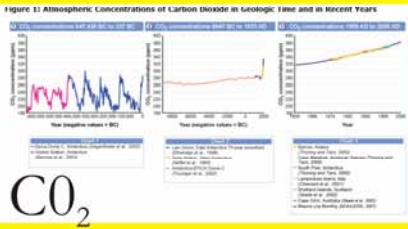


Figure 02. Carbon Dioxide is a gas produced by all living organisms that use organic compounds as a source of nutrition (energy). It is also produced through the burning of fossil fuels to create the electricity that powers our homes. It is the main greenhouse gas and it has been increasing quickly since the Industrial Revolution over 200 years ago. In this chart you can see that during times of the day the levels can spike well above the average of about 380 ppm. However, the general trend is for the levels to come down slightly during the summer time due to the process of photosynthesis when plants use it to make it's organic sugars.

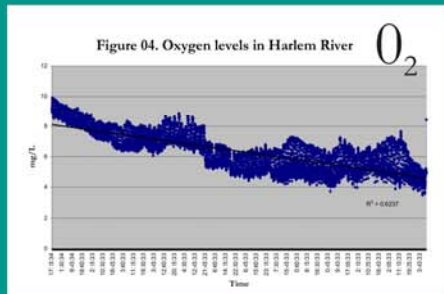
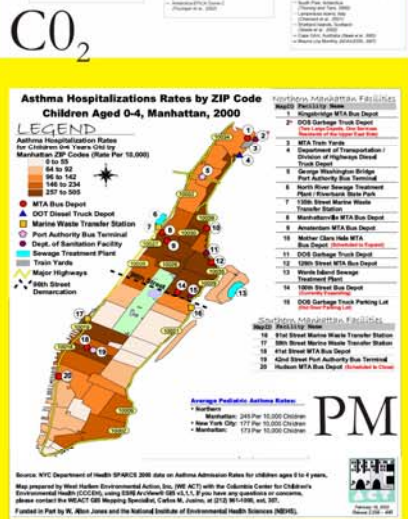


Figure 04. Oxygen is a gas produced by plants during photosynthesis. It is required by all organisms that use organic compounds as a source of energy including plants and animals. When the levels fall below 2.10 mg/L dissolved oxygen in the water the environment is said to be anoxic. Anoxic environments cause most major forms of life to die off very quickly only allowing very simple forms of life to live like some species of anaerobic worms and microorganisms. These organisms produce waste that makes the water smell and makes it harmful for people to be around. In this figure the levels of oxygen fall to as low as 4.01 mg/L as the temperature gets warmer in the spring time but not below the anoxic line. As the summer progresses we will have more data to determine just how anoxic the Harlem River can get. To date, very few organisms have been spotted in the River.



# Harlem Environmental Status and Solutions

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Scientific Problem: What are the environmental conditions of Harlem and what solutions can we suggest?

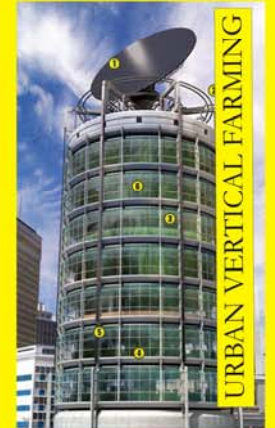
## SOLUTIONS...



CONSERVATION



WATER MANAGEMENT



URBAN VERTICAL FARMING



ALTERNATIVE ENERGY

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