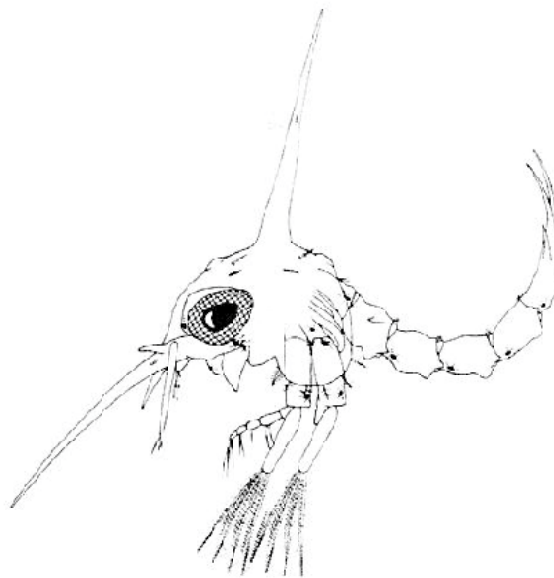


2nd ANNUAL

NEW YORK HARBOR SCHOOL
SCIENCE SYMPOSIUM



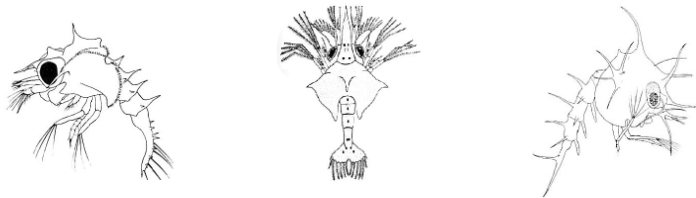
MAY 15, 2013

Presented by the
MARINE BIOLOGY / SCIENCE RESEARCH PROGRAM

DRAWING CREDITS: YOUNG, C.M. (ED.) 2002. ATLAS OF MARINE INVERTEBRATE LARVAE. ACADEMIC PRESS P. 626.

NEW YORK HARBOR SCHOOL

SCIENCE SYMPOSIUM



PROGRAM

11:00 AM	Posters Set-Up in Hallways	All Marine Biology Students
12:00 AM	10 th and 11 th Grade Presentations	All Marine Biology Students
01:00 PM	Student Viewing of Projects Staff Judging of 11 th and 12 th Grade Projects	All Students + Staff
03:55 PM	Guests and Students Arrive in Mess Hall	All
04:00 PM	Introduction and Welcome	Mr. Edward Biedermann Principal, Harbor School
04:10 PM	Introduction of Keynote Speaker	Mr. Mauricio Gonzalez Research Teacher, Harbor School
04:15 pm	Keynote Speaker <i>The Citizen-Scientist-Student Connection: Saving the World One Eel at a Time</i>	Mr. Christopher Bowser Science Ed. Specialist, NYSDEC
04:40 PM	<i>Monitoring the Concentrations of Carbon Dioxide in a New York City Classroom</i>	Ameena Peters Research Student, Harbor School
04:50 PM	<i>Dissolved Oxygen as a Health Indicator of Local Estuary Water Surrounding Governors Island</i>	Cecilio Benn Research Student, Harbor School
05:10 PM	<i>Effects of Piping Plover Nesting Site & Parental Supervision on Chick Survival</i>	Any Mahon Research Student, Harbor School
05:20 PM	Award Ceremony	All
05:35 PM	Closing Remarks	MC + Assistants

MARINE BIOLOGY / SCIENCE RESEARCH STUDENTS AND PROJECT TITLES

Seniors

Project Titles

Cecilio Benn	Dissolved Oxygen as a Health Indicator of Local Estuary Water Surrounding Governors Island
Anthony Fernandez	Comparing Plankton and Plastic in the Hudson River
Jasmine Hernandez	Testing the Effects of Nutrient Fertilizer on Basil (<i>Ocimum basilicum</i>) Growth
Ileana Leon	Water Quality around Governors Island
Daniel Little Hewitt	Testing The Effects of Nutrient Fertilizers on Basil (<i>Ocimum basilicum</i>) Growth
Amy Mahon	Effects of Piping Plover Nesting Site & Parental Supervision on Chick Survival
Kimberly Morales	Monitoring Nutrients and Enterococcus Bacteria at Piermont Marsh (Hudson River Estuary)
Joshua Nieves	Study of Human Form and Anatomy
Rosalyn Nunez	How do the Levels of Black Carbon Compare during the Day and Night Time?
Jahnica Ottley Francis	Animal Cruelty: Lets be the Voice for the Ones Who Don't Have One
Ameena Peters	Monitoring the Concentrations of Carbon Dioxide in a New York City Classroom
Marc Rivera	Effects of Music on Heart Rate
Stephanie Rodriguez	Effects of Different Magnesium Concentrations on the Growth Rate of Basil (<i>Ocimum basilicum</i>)
Garcella Sims	Comparing Fish Population around Governors Island and Sound View Associated to Oyster Formation Using a Novel Sonar System: DIDSON
Ahyrton Vasquez	<i>Not presenting</i>

Juniors

Project Titles

Samiyra Abdus-Samad	Effect of the Composition of Concrete on Biodiversity and Ecology on Benthic Organisms
Thomas Barwick	Returning Ospreys to New York City
Makeda Bloomfield	Monitoring the Atmospheric Carbon Dioxide and Black Carbon on Governors Island

Deanasia Jeanpierre	Does the Water Quality of the East and West Sides of Governors Island have the Ability to Sustain the Atlantic Oyster (<i>Crassostrea virginica</i>)
Pablo Jimenez	Testing the Atlantic Oyster's (<i>Crassostrea virginica</i>) Ability to Filter <i>Enterococcus faecalis</i> in Vitro
Kayla Kimbrough	Zooplankton in the Hudson River Estuary
Anthony Lopez	Monitoring Populations of Fish in the Hudson River Estuary New York City
Jeremy Maldonado	Enterococcus and how it affects Aquatic Life
Samantha Rhodes	Monitoring Enterococcus Bacteria around Governors Island
Kendal Roberts	Are the Parameters around Governors Island Tolerable for Aquatic Organisms
Thomas Balarama Ronan	Identifying Marine Invertebrates in the Hudson River Estuary
Bazl Shief Taliaferrow Mosleh	Are the Parameters Around Governors Island Safe for Aquatic Organisms?
<i>Juniors not Presenting</i>	Tsiang Belgrove Sheridian Duncan Ja'onna Joye Raees Ali Mohammed Harmony Rose Strang

Sophomores

Project Titles

Tahirah Abdo	Conservation Challenges in Urban Seascapes: Promoting the Growth of Threatened Species on Coastal Infrastructures
Kieron Achee	Density of Plastic Particles in Zooplankton Trawls from Coastal Waters of California to the North Pacific Central Gyre
Rachel Anderson	<i>Hemigrapsus sanguineus</i> (Asian Shore Crab) as Predator of Juvenile <i>Homarus americanus</i> (American Lobster)
Sarah Aviles	What's an Aquatic Ecosystem Model
Genesis Carvajal	Ecological Succession and the Climax Community on a Marine Subtidal Rock Wall
Theo Esvandjia	How does an Aquatic Ecosystem Work?
Jade Gonzales	How to Maintain an Aquatic Ecosystem
Violeta Gonzalez	Cage Change Influences Serum Corticosterone and Anxiety-like Behaviors in the Mouse
Stefanos Kalogrias	Changes in Fish Assemblages in the Tidal Hudson River, New York

Brendan Maisonet	Comparison of Plastic and Plankton in the North Pacific Central Gyre
Nicolle Martinez	Resource-Restricted Growth of Eel Grass in New York Estuaries: Light Limitation, and Alleviation of Nutrient Stress by Hard Clams
Averille Ramos	Waste Water and Watershed Influences on Primary Productivity and Oxygen Dynamics in the Lower Hudson River Estuary
Orlando Ramos	Waste Water and Watershed Influences on Primary Productivity and Oxygen Dynamics in the Lower Hudson River Estuary
Bill Rosado	Significance of an Aquatic Ecosystem Model
Shawn Smith	The Effects of an Air/Water Surface on the Fast-Start Performance of Rainbow Trout (<i>Oncorhynchus mykiss</i>)
Andrew Sommer	Succession of Sessile Organisms on Experimental Plates Immersed in Nabeta Bay, Izu Peninsula, Japan
Linda Stevens	Maintaining an Aquatic Ecosystem Model
Alisha Tucker	Aquatic Ecosystem Model
Samuel Wilson	Creating and Sustaining an Aquatic Ecosystem Model
Jelani Wiltshire	Detecting Emotion in Music

KEYNOTE SPEAKER



Chris Bowser is the Science Education Specialist for the NYSDEC Hudson River Estuary Program and the Education Coordinator for the National Estuarine Research Reserve, in partnership with the Water Resource Institute of Cornell University. His professional experience includes working as a Peace Corps forestry volunteer in Mauritania, serving as Education Director for the Hudson River Sloop Clearwater, mapping river shorelines for the Research Reserve, teaching at Marist College in the Environmental Science department, and serving as a founding board member of the Bronx-based Rocking the Boat. He earned a Masters degree in Environmental Science and Policy from Clark University, and a Bachelors degree in Biology from Rutgers University. Chris's current work with the NYSDEC focuses on environmental education and citizen science in the Hudson River Valley where he manages education programs at the Norrie Point Environmental Center. He helps coordinate an annual estuary-wide monitoring day involving 3000 students at 60 shoreline sites, and leads teacher training workshops on incorporating Hudson River topics into existing curriculum. Bowser created a citizen-science project to monitor juvenile American eel migrations in the Hudson River and New York Harbor, featured in a recent New York Times article titled "Why I Count Glass Eels". Contact information: chbowser@gw.dec.state.ny.us; (845) 264-5041

SENIOR ABSTRACTS + BIOGRAPHIES



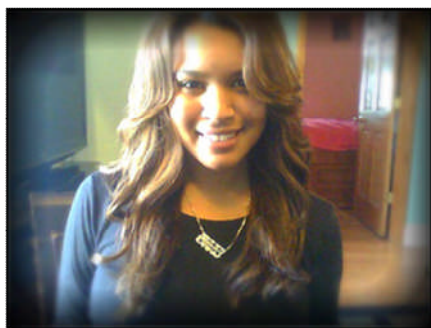
Anthony Fernandez

Project Title: Comparing Plankton vs. Plastic in the Hudson River Estuary

Mentors/Advisors: Matt Leahey, M.Sc. + Mauricio Gonzalez, M.Sc.

Abstract: Plankton is one of the most important things in the world. It's important because it feeds the web of marine life. However, the human population is affecting the estuary by contaminating it with too much plastic. This plastic does not break down quickly but remains in the top layers of the ocean where plankton live. One day, this may cause for the plankton to die because it will not receive the light necessary for photosynthesis because the plastic will cover it. We hypothesize that there is a greater proportion of mass of plankton to plastic in the harbor. This project will study the plastic and plankton near Great Kills, Staten Island. Using a manta tow and placing it in the water for 15 minutes and viewing the sample under a microscope we will count how many plankton and plastic are in the water.

Bio: In summer 2012 I attended the Leader Environmental Action for the Future program (LEAF); I love to dance; I start doing marine biology research program when I came to senior years; I'm 19 years old; I was born in Dominican Republic; I came to the United States when I was 12 year old; I have almost been in the U.S. for seven years; I made it to the dean's list. Clubs - Harbor SEALs Volunteer Citizen Science Program, music, yearbook, grading and I teach older people how to dance Bachata and Salsa outside the school in Queens Ridgewood. I am going to major in veterinary medicine and I am going to be a doctor for animals. My high school highlight is that I found a best friend that helped me to change the way I was in the past and taught to not fall for bad things or be around bad people who can destroy my life. It's really important to find the right person in high school to be friends with. Never give up keep trying.



Jasmine Hernandez

Project Title: Testing the effect of Nutrient Fertilizer on Basil (*Ocimum basilicum*) Growth

Mentor: Mauricio Gonzalez, M.Sc.

Abstract: Human waste released into the environment from combined sewage overflows (CSO) increases the nutrients load in natural waterways causing excessive algae and bacterial growth stressing natural and healthy ecosystems by consuming dissolved oxygen. Can testing the effects of different nutrients to Basil plants affect their growth rate and provide some insight into the effects of eutrophication? Two different fertilizers were used to test their effects on basil. The fertilizers used were macronutrients and micronutrients. We hypothesize that the plants with macronutrients would grow more. The treatments with macronutrients grew 15cm on average more than the micronutrients. This type of vigorous growth can be compared to algae and bacterial growth in natural water ways.

Jasmin's Biography: Attended Syracuse University for a summer program in 2012. Completed 2 years of college level research. Made it to the Dean's List in 2012-2013; have been a part of the Newspaper Club and Harbor SEALS Citizen Science Volunteer Program. Goal - be a successful media broadcaster after majoring in Communication.



Amy K. Mahon

Project Title: Effects of Piping Plover Nesting Site & Parental Supervision on chick survival

Mentor: Kathleen Uvino, Ph.D.

Abstract: Piping Plovers are one of the most endangered birds on the East Coast of North America in the 21st century, a majority of their decrease happening while they're still young chicks. Their nesting habitat plays a great factor in survival of newborn plovers. By observing the Plover's surroundings during the nesting season, we can reveal how the Plover's choice of breeding site in a developed locality plays out in the chick's survival. Through this, a more developed safeguard for the bird's habitat can be proposed. Out of the observations and data

acquired, there was evidence that the 2012 Breezy Point census of Plover reproduction & fledging had increased by about 25 percent, which is very high compared to other increases in the past.

Biography: Accomplished Marine Bio Research student. Photographer. Aspiring Photojournalist for National Geographic. Future student of Canisius College, particularly dual majoring in Journalism and Anthropology. Hobbies – biker; horror film enthusiast, Vonnegut inspired, blogger, idiosyncratic, ruthless

Kimberly Morales

Project Title: Monitoring Nutrients and Enterococcus Bacteria in Piermont Marsh, New York

Advisor: Robert Newton, Ph.D.

Biography: My high school highlight would be the time I had gone with my 10-grade class to Washington DC. I had a fun time getting to know a new place but as well learn more about American history during my time at there. Academic Accomplishments: Getting high scores on my history Regents exam. After School Programs: Gardening and Harbor Seals Volunteer Citizen Science Program. College: I'm going to University at Albany during the fall and as of now have an undeclared major.

Joshua Nieves

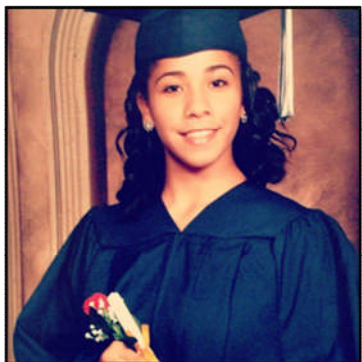
Project Title: The Study of Human form and Anatomy

Advisor: Mauricio Gonzalez, M.Sc.

Abstract: What is Human form? What is Anatomy? What do the two have in common? This Project will compare Human Form to Anatomy and discuss the similarities and differences between the two.

Biography: High School Highlights - Finishing the college application process. Academic Accomplishments - Passed all my class all four marking periods. After School Programs - Jen's Art Class. Jen teaches us how to draw and paint and how to further advance our art skills and helps us build a portfolio. Hobbies - I like to draw and I'm currently

building an art portfolio. Goals and Interest - I want to be an Illustrator, Cartoonist or a Tattoo Artist. College & Major - LaGuardia Community College Majoring in Fine Arts.



Rosaly Nuñez

Project Title: How do the levels of Black Carbon Compare during the Day and Night time

Advisors: James Ross, M.Sc. + Mauricio Gonzalez, M.Sc.

Abstract: How do the levels of Black Carbon Compare during the Day and Night time? Students who attend the NY Harbor School should be more aware of what kind of air they are breathing. There are a few sources of potential contamination on Governors Island such as the Brooklyn-Battery Tunnel ventilator, all the cars on the highways that line Brooklyn, emissions from construction vehicles around Governors Island, and ships that use the Upper New York Bay. They all contribute to form Black Carbon. The data from the Black Carbon (BC) sensor outside of the New York Harbor School's building, specifically outside of classrooms 320's window supported the hypothesis that there would be high levels during the day time when students are in school and the low levels during the night time. During the average day of the week students on Governors Island were exposed to 394.5 ng/m³ more BC levels than they would at night. This is because the average concentration of BC during the day time on the week of February 2nd to February 9th of 2012 was 1197 ng/m³ and during the night time it was 802 ng/m³.

Biography: Attend the Urban Assembly New York Harbor School; Academic Accomplishments - Certificate of Completion of "Techniques in Biotechnology" course at Brown University; Certificate of Excellence shown throughout Marine Biology Research Program; National Honor Society; Goals/Interests - Medical field, Surgical Technician, Physician's Assistant



Ameena Peters

Project Title: Monitoring the Concentrations of Carbon Dioxide in a New York City Classroom

Mentor: Philip Orton, Ph.D.

Advisor: Mauricio Gonzalez, M.Sc.

Abstract: What are the effects on opening and closing the windows and doors in a New York City Classroom? Carbon dioxide levels greater than 1000 ppm can have negative health effects on students and their ability to learn. Levels above 3000 can result in brain damage and even death due to loss of oxygen. Four treatments were set up to determine the levels of Carbon Dioxide in a NYC class room: windows and doors opened with students, windows and doors opened without students and vice versa. We hypothesized that if the doors and windows are closed then that CO₂ levels would increase to levels above 1000 ppm because there are no open spaces to allow for air exchange with the external environment. We used a LICOR Sensor to detect the CO₂ for a period of 3 months.

Biography: Looking back on the years before I became a senior I realize they were pretty smooth going until I got to the challenge course - my Science Research class. I feel like I have accomplished a bit more now than I did Junior year. The highlight would be taking part in the science fair and having students and staff look at my work, which

was a wonderful experience. I joined myself into some things this year for example music club. One of the things I love to do is sing. I always say music is life. I joined the Harbor SEALs Volunteer Citizen Science Program where a group of students go out to monitor sea, air and land, and pretty soon I will join the sailing club. One of my definite goals is to finish college. My main priority is to find a job in the field of science and my intended major for university/ college would be Marine Biology.

Marc Rivera

Project Title: Effects of Music on Heart Rate

Abstract: To assess the potential clinical use, particularly in modulating stress, of changes in the cardiovascular and respiratory systems induced by music, specifically tempo, rhythm, melodic structure, pause, individual preference, habituation, order effect of presentation, and previous musical training.

Biography: Accomplishments - Certified Junior Marine Biologist; S.T.E.M completion at SUNY Maritime; Managed to actually finish an extensive project (well, that's an accomplishment for me personally) :p; After school programs - Running club, librarian assistant, Activism club, Music club, Youth in action (Improv Theater), Marine Biology Research Program, Swimming club, Hobbies - Listening to music, Playing guitar, piano, drums, Doing drum covers (I love playing the drums ^-^), Writing poetry, Sleeping ;), Learning different types of instruments, exposing myself to different types of styles and genres of music, rapping, alphabetizing my collection of extremely valuable limited edition baseball cards... (I'm lying on that one), Goals/interests: To become a musician. I feel I should share what empowered me to become something important to the world with others and empower them as well, it's only fair. One of my interests is the paranormal. I read about it especially since I was exposed to that sort of lifestyle since I was a child. It's always caught my attention. College/intended major - York College or Baruch College, Performing arts/music composition

JUNIOR ABSTRACTS

Samiyra Abdus-Samad *Effect of the Composition of Concrete on Biodiversity and Ecology on Benthic Organisms*

Mentor: Shimrit Perkol-Finkel, Ph.D.

Abstract: While coastal zones occupy less than 15% of Earth's land surface, they are inhabited by nearly two thirds of the human population, making coastal development and urbanized seascapes inevitable (Perkol-Finkel *et al*, 2011). This project will study the effects of customized concrete mixtures of CMI on the compositions of benthic organisms and their ability to provide ecosystem services. Four sampling units with various cement mixtures were placed hanging off of Pier on Governors Island and sampled three times throughout the course of a year. Cement mixtures five and one had the best results for biodiversity index.

Tommy Barwick *How do I bring the Osprey population back to NYC?*

Mentor/Advisor: Mauricio Gonzalez, M.Sc.

Abstract: Before the 1970's, the osprey population in New York City flourished until the chemical DDT came into play. DDT is a pesticide that was banned in the 1970's due to its severe environmental effects. My job now is to try and bring the ospreys back to the city, so I put a nest on Yankee Pier on Governors Island. I am very uncertain

about the outcome of this project due to the construction on the island and the fact that the water is still unhealthy for animals to thrive off of.

Makeda Bloomfield *Monitoring Carbon Dioxide and Black Carbon on Governors Island*

Mentor/Advisor: Mauricio Gonzalez, M.Sc.

Abstract: With all the commotion of the depletion of ice caps and the increase of the atmospheric temperature, Carbon Dioxide and Black Carbon have been the number one influence of the factors worldwide (Jacobson, 1997). Carbon Dioxide (CO₂) is a colorless, odorless, incombustible gas that is present in the atmosphere and is formed when any fuels containing carbon is burned. Black Carbon (BC), on the other hand, is a climate forcing agent formed through the in completed combustion of fossil fuels, bio fuels, and biomass. Due to continuous reconstruction of Governors Island, there has been an increase of cars and an overwhelming break down of buildings, in which all can contribute to Carbon Dioxide and Black Carbon increase. Both Carbon dioxide and black carbon warms the earth by absorbing the heat that is produced in the atmosphere. This project was conducted on G.I, NYC, by sampling the air outside the window of a NYC classroom using a carbon dioxide and black carbon sensor. This period coincides with the reconstruction of the G.I Park in which many of the buildings are being torn down, along with the vehicles driven back and forth.

Deanasia JeanPierre *Does the water quality on the East and West side of Governors Island have the ability to sustain the life of the Eastern Oyster?*

Advisors: Mauricio Gonzalez, M.Sc. + Pete Malinowski, M.Sc.

Abstract: The Eastern Oysters (*Crassostrea virginica*) are important species to the Upper Bay in New York City. They are considerable important as it provides economic and ecological importance. Oysters provide many direct and indirect services that benefit coastal fisheries and New York's economy. The main issue with the population of oysters in New York is that they have declined greatly since the early 1900's. They have decreased from their original population of 25 million to just about 1% of its initial population because of over-harvesting, sewage pollution, and landfill. This experiment is supposed to determine whether or not the water quality on the East and West side of Governors Island have the ability to sustain the life of the Eastern Oyster. It is believed the water quality levels of the East and West side of Governors Island will not be within the parameters needed to sustain the Eastern Oyster parameters.

Pablo Jimenez *Testing the atlantic oyster (Crassostrea virginica) ability to filter Enterococcus feacalis invitro.*

Advisor: Mauricio Gonzalez, M.Sc.

Abstract: Enterococcus was reported to have given about 50,000 illness cases in the beaches of California (Turbow, 2003). Enterococcus is a feecal bacterium that thrives and prospers from human waste. It can cause serious infections to the eyes ears mouth and skin, and could be found in large recreational swimming areas(loganathan, 1997). However, oysters are known for being filter feeders and eating pollutants in large quantities and cleaning vast stretches of water. Not only that, but oysters can filter a 1.0 – 12.0 u size (fisher, K 2009). The main reason for this experiment is to try to find a way to filter pollutants from beaches so as to avoid contamination by swimmers. 8 tanks were installed to try to determine the amount of enterococcus in the 8 tanks.

Makayla Kimbrough

Zooplankton in the New York Harbor Estuary

Mentor:

Mauricio Gonzalez, M.Sc.

Abstract: Zooplankton is number 2 in the food chain. It's the main organic source of food in the food chain. The Harbor Estuary is improving, because it is not being polluted as it was in the past. As a result Zooplankton that we're capturing may be increasing. This project includes what type of Zooplankton surrounds Governors Island. We hypothesized that of the most common Zooplankton would be *Pseudocalanus newmani*. We captured our sample by using a zooplankton net and sampling them by using a microscope with a digital camera and computer. The results support our hypothesis.

Anthony Lopez

Monitoring Fish Populations in the Hudson River Estuary N.Y.C.

Mentor:

Mauricio Gonzalez, M.Sc.

Abstract: This project will determine the fish population in the waters around Governors Island where the research will be conducted. The importance of researching fish population is because they are an economically important resource for trade, food for people and vital implements that keep an ecosystem healthy. I believe fish in Governors Island will not be so abundant in the Hudson River waters. Using DIDSON Sonar will provide data on the amount of fish in the east side of Governors Island. Fish traps such as Minnow traps will be set on east side of Governors Island. The Hudson River contains nutrients from microscopic algae. Fish depend on their habitat to provide them with the best resources to survive in their environment.

Jeremy Maldonado

Monitoring Enterococcus Bacteria around Governors Island, NYC

Mentor:

Mauricio Gonzalez, M.Sc.

Abstract: The Hudson River Estuary is known to be closed off for recreational use due to high levels of bacterial contamination. Measuring Enterococcus bacteria could help to determine if the Hudson River Estuary could be used for recreational uses. We studied how Enterococcus Bacteria compares from the East and West sides of Governors Island. We hypothesized that the West side would have a higher Enterococcus level than the East. The Enterolert Idex method was used to measure Enterococcus levels on both East & West sides of Governors Island.

Samantha Rhodes

Monitoring Enterococcus Bacteria around Governor's Island

Mentor:

Mauricio Gonzalez, M.Sc.

Abstract: The Hudson River Estuary is known to be closed off to the public for recreational uses due to the pollution in the estuary. Measuring Enterococcus bacteria in this project will help determine if the Hudson River Estuary can ever be used for recreational activities. The problem of this project is; how Enterococcus Bacteria compares from the East and West side of Governors Island. The hypothesis of this project is that the West side of the Island would have more Enterococcus bacteria after rainfall. The Enterolert Idexx method was used to measure Enterococcus levels on both East and West sides of Governors Island. The results were that the West side had an average of 42 MPN and the East side had an average of 27 MPN.

Kendall Roberts*Are the Parameters around Governors Island Tolerable for Aquatic Organisms***Mentor/Advisor:**

Mauricio Gonzalez, M.Sc.

Abstract: This is a project that compares and contrasts the East and West side of Governors Island. It compares and contrast the results of different parameters measured in the water. Our hypothesis is that the West side of Governors Island will have healthier water levels. The parameters measured were dissolved oxygen, nitrates, nitrite, and temperature.

Thomas Ronan*Identifying Marine Invertebrates in the Hudson River estuary***Advisor:**

Mauricio Gonzalez, M.Sc.

Abstract: The Hudson River Estuary has gone through various changes since Europeans first came to the New World. Man has not been kind to the Estuary and various organisms have been lost including the once great population of *Crassostrea virginica* (Oyster). At one point the harbor lost almost all life due to pollution. Only recently in the past twenty years man has come to terms with the fact that we need a diverse eco system all over the world including the New York estuary for our ultimate survival. This project is a small contribution to that restoration effort it samples water from the estuary using Zoo Plankton nets capturing numerous organisms for analysis and classification. If the project is successful information will be gathered in order to decipher whether or not the water is habitable and if its condition is improving or getting worse as time progresses based off the diversity of the organisms found and the population of each organism identified.

Bazl Taliferrow-Mosleh*Are the Parameters around Governors Island Tolerable for Aquatic Organisms?***Mentor/Advisor:**

Mauricio Gonzalez, M. Sc.

Abstract: Water quality is a general term that represents a broad set of parameters that play a role in the condition of the water affecting the entire fish population. The water quality on Governors Island is not something that has been tested before systematically. The physical and chemical parameters measured to determine the water quality were Temperature (Celsius), Dissolved Oxygen (D.O.%), Nitrite (NO₂ ppm), Nitrate (NO₃ ppm), Ammonia (NH₃ ppm), pH, and Turbidity. Once a water sample was taken, immediately the D.O. and temperature was tested; then the sample was taken back to the lab where the other parameters were tested. The parameters that were most important were Temperature and Dissolved Oxygen. For Governors Island East Side Temperature a trend of precision is shown. This was done because they indirectly correlate and have the ability affect a broader range of fish.

THE MARINE BIOLOGY / SCIENCE RESEARCH PROGRAM WOULD LIKE TO THANK THE FOLLOWING PEOPLE FOR THEIR SUPPORT:

District Office

Ms. Marisol Bradbury Superintendent of Schools

Parents

Ms. May Taliaferrow Co-President PTA
Ms. Cindy Palicka Secretary, PTA
Ms. Madeline Jaye Parent

And all the parents/guardians of the students of the UA New York Harbor School for your help and patience throughout the year

Administrators + Support Staff

Mr. Edward Biedermann High School Principal
Mr. Ernest Jean-Baptiste School Business Manager
Ms. Karla Joseph Social Worker
Ms. Nellie Garrow-Coleman Social Worker
Ms. Cadian Leys Principal's Secretary
Ms. Pam Edwards School Aide
Mr. Bev Means School Aide
Mr. Marlon Scott School Aide

New York Harbor Foundation

Mr. Murray Fisher President
Mr. Matthew Haiken Administrative Officer
Ms. Robina Taliaferrow Business Manager
Mr. Carter Craft Development of Long Range Planning
Ms. Sofie Malinowski Development Director

Guest Speaker

Mr. Christopher Bowser Science Education Specialist, NYSDEC

Staff

The entire UA New York Harbor School for its help and patience throughout the year

Judges

Ms. Ann Fraioli Mr. Joseph Murphy
Mr. Murray Fisher Ms. Cindy Palicka
Ms. Sarah Gribbin Ms. Rebecca Grussgott
Ms. Madeline Jaye Ms. Jen Primosch
Mr. Matthew Haiken Ms. Paulette Ann Roberts
Ms. Alissa McGrisken Ms. Claire Lorenz
Ms. Emily Rotando
Ms. Anna Lurie

Mentors/Advisors

Dr. Michael Judge Manhattan College
Dr. Philip Orton Steven's Institute
Mr. Matthew Leahey SeaSavers Inc.
Dr. Shimrit Perkol-Finkel SeaARC
Dr. Ido Sella SeaARC
Mr. James Ross Lamont-Doherty Earth Observatory
Dr. Thomas Grothues Rutgers University
Dr. Robert Newton Lamont-Doherty Earth Observatory
Mr. Peter Malinowski New York Harbor School
Mr. Bart Chezar Indy Citizen Scientist
Dr. Jeffrey Levinton SUNY Stony Brook

Special thanks to the parents and students of our Marine Biology / Science Research Students. We greatly appreciate all the love and support they provide us each and every day.