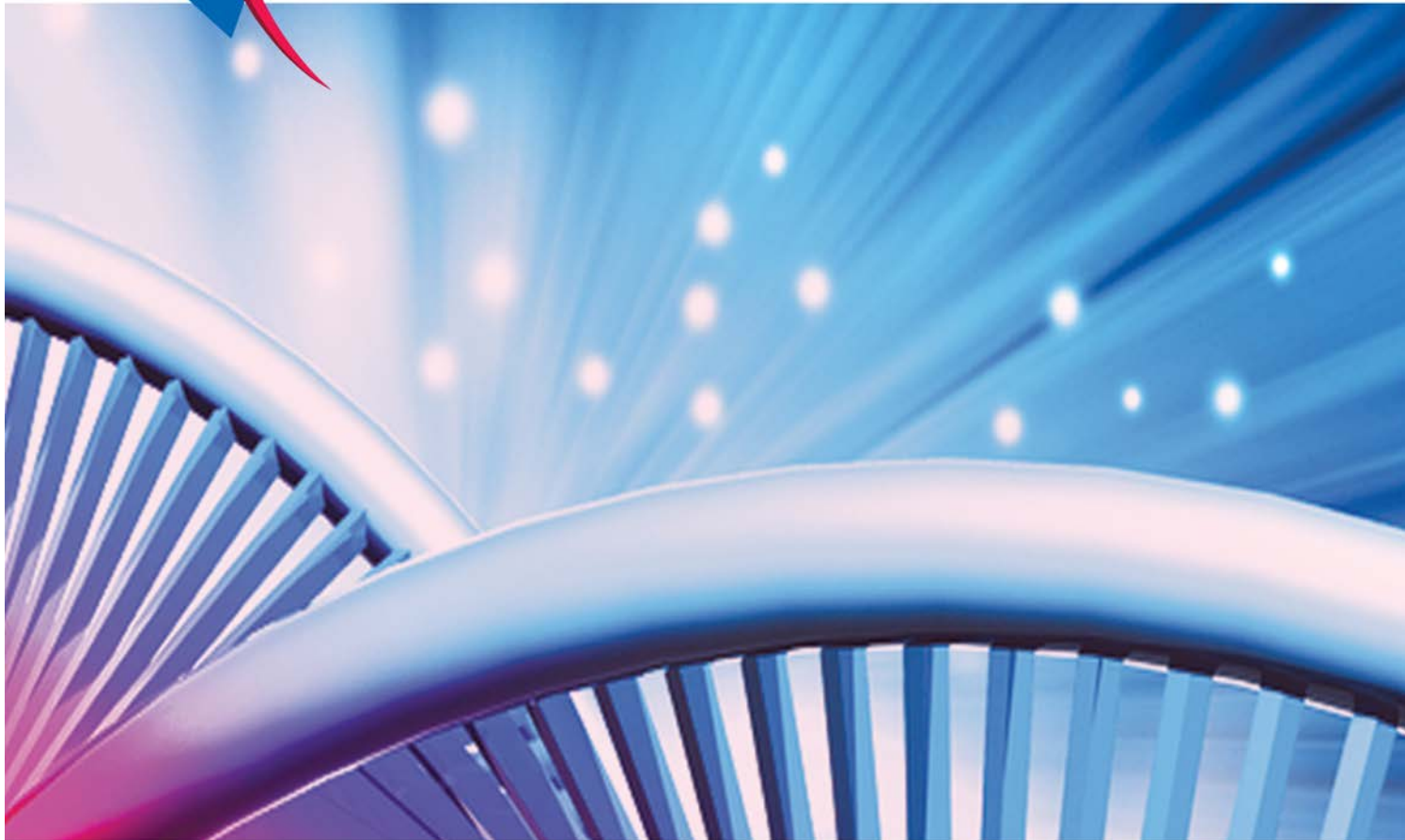




the stars  
challenge

The Environment  
and You  
Fall 2013



We began by looking into some of the ways decisions humans make are impacting the natural world. We also shared personal experiences of special natural places to understand just what was at stake. Whale Pond Brook, the stream that runs through Monmouth University, was targeted for intensive investigation. Fun was had by all as we suited up in waders and ventured into the mud. Some of us displayed a talent for getting stuck in the mud and required repeated rescue. Serious science followed as we calculated rates of stream flow, surveyed macroinvertebrates, and took water samples for chemical analysis.

Our findings were mixed. The rampant development around the watershed has negatively impacted water quality, and a loss of biodiversity has occurred. A slight improvement seen in the health of the watershed a few years ago seems to have retreated.

At the request of the students, the issue of Overpopulation was studied. We tried to solve the problem of the Tragedy of the Commons with mixed results. It is very hard for humans to give up short-term gains in the interest of long-term goals, even when the stakes might be the long-term survival of our species.

Human Induced Climate Change was our next topic of study. We manipulated carbon dioxide levels and measured heat retention in experimental atmospheres. The conclusion was unambiguous: raising carbon dioxide levels in our atmosphere force it to retain more of the sun's energy and raise the temperature of the Earth.

We ended by investigating ways to change our energy usage patterns to reduce carbon dioxide emissions through the use of wind, solar and biofuel energy.

Tread lightly on the Earth. Remember that your decisions have consequences. Take care of this precious blue world, the only home you'll ever know.

It's been my honor and pleasure to work with you.

E. Marc Coe



Exploring Whale Pond Brook - the water, the flora, the fauna, the mud.



We were the height of fashion in our waders.



We determined that Whale Pond Brook had two sources: water upstream and local runoff.



Collaboration was required to determine the rate of stream flow at the different sites.



Teamwork was required to complete the macroinvertebrate survey.



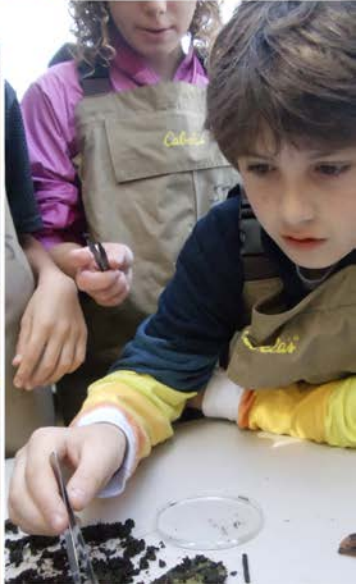
A surprising number of living things were thriving in the brook. We were able to determine the health of the ecosystem by categorizing the fauna we found.





Amy Chianucci, the Monmouth County Watershed Ambassador, shared her expertise and enthusiasm with us. The macroinvertebrates had no hope of escaping her thorough search!







Patience and a delicate touch were required to categorize all the life we found.



Manicures were required to remove the quantities of mud found under our fingernails. This did not deter us in our investigation.



Moving inside, a chemical analysis of water samples from the brook was completed.



The results of our testing were not encouraging. The water in Whale Pond Brook is contaminated with a number of pollutants.



The Tragedy of the Commons paradox was investigated via Role Playing. We had a lot of fun and developed insight into the difficult nature of the problem.





Global Warming was modeled using soda bottles and heat lamps. Our discoveries were not reassuring!



Performing experiments allowed us to determine the validity of the claims regarding Human Induced Climate Change.



