THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

NOV 2 1 2016

Mr. Nathan Paukstelis
Mr. Jonah Truman
Mr. Donovan O'Connell
Manhattan High School – East Campus
901 Poyntz Avenue
Manhattan, Kansas 66502

Dear Nathan, Jonah, and Donovan:

I always enjoy hearing from young people who care about the environment, and I appreciated your thoughts and passionate concerns about ocean acidification. The U.S. Environmental Protection Agency shares your concerns. Concerned students like the three of you who care about our environment are among the many reasons why I am optimistic about the environmental health of our nation and our planet.

As you mentioned in your letter, ocean acidification is a consequence of increasing carbon dioxide in our oceans. As you may already have discovered during your research, oceans absorb carbon dioxide from our atmosphere. It then reacts with sea water to form carbonic acid, which causes a decrease in the pH of the oceans, thus increasing ocean acidity. If we can work together to reduce the amount of carbon dioxide in our atmosphere, we can reduce the impacts of ocean acidification on marine species like the Pteropods you mentioned. During the past 250 years oceans have absorbed about 28 percent of the carbon dioxide produced by burning fossil fuels. Reducing carbon dioxide emissions from burning fossil fuels is the most direct way to reduce future atmospheric concentrations of carbon dioxide and address ocean acidification.

In addition to contributing to ocean acidification, the burning of fossil fuels and addition of carbon dioxide to the atmosphere cause the Earth to warm. This is because carbon dioxide is a greenhouse gas, which means it traps heat in our atmosphere. Warmer temperatures warm our oceans, further altering the ecosystems of marine species like those mentioned in your letter. In addition, warming can lead to other changes around the world, such as melting glaciers and stronger storms. These changes are happening because the Earth's air, water and land are all linked to the climate. If your group is looking for another idea for a research project, you should check out some of the impacts of a warming climate, listed on our website at www.epa.gov/climate-impacts. You also can learn more about the causes and effects of a changing climate in the EPA's new report, *Climate Change Indicators in the United States, 2016*. The report, which has a chapter on oceans that you might find interesting, is available at www.epa.gov/climate-indicators.

This paper is printed with vegetable-oil-based inks and is 100-percent postconsumer recycled material, chlorine-free-processed and recyclable.

The EPA is taking a number of steps to reduce carbon dioxide in our atmosphere. Just last year, we released the Clean Power Plan as a part of President Barack Obama's Climate Action Plan. The plan proposes to cut carbon pollution from existing power plants, the largest source of greenhouse gas emissions in the United States. In addition, the EPA has collected comprehensive emissions data from more than 8,000 facilities and suppliers in the United States, which improves our ability to make informed policy, business and regulatory decisions. We also have set groundbreaking mobile-source and renewable-fuel standards to increase fuel efficiency for all new cars and trucks sold in the United States through 2025. This will save consumers $1.7 trillion at the pump and decrease carbon pollution by more than 6 billion metric tons. For more information about what the EPA is doing to reduce carbon emissions and address climate change, please visit www.epa.gov/climatechange/what-epa-doing-about-climate-change.

Protecting people and the environment is the EPA's mission, but we cannot do this work alone, and that is why I encourage you and your classmates to stay involved. Just as it takes many drops of water to fill a bucket, the actions of many individuals are necessary to keep our environment clean, safe and healthy. I encourage the three of you to share what you've learned about ocean acidification with your classmates and to keep asking questions. More information and ideas on how to teach your friends, classmates and family to do more to protect public health and our environment is available at www.epa.gov/students.

Thank you for your concern about the quality of our environment and for doing your part to protect it.

Sincerely,

Gina McCarthy