



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
2015 Volume III: Physics and Chemistry of the Earth's Atmosphere and Climate

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## How Humans Impact the Long Island Sound

Guide for Curriculum Unit 15.03.04  
by Deborah A. Johnson

In this curriculum unit, teachers and students will learn about the history of how the Long Island Sound was formed through glaciation, look at how humans impacted the area, and explore how the Sound is one of the most heavily used estuaries in the United States due to its location between the states of New York and Connecticut. This unit considers physical, chemical, and biological impacts on this ecosystem and how agriculture has adversely affected the Sound.

Inspired by the book *The Alchemy of Air*, by Thomas Hager, there is a discussion of the history of the worldwide search for the richest fertilizer, a quest that has led to many conflicts among nations as they seek to produce the most profitable crop yields to feed their people. The discovery of fertilizers contributed, also, to the discovery of gunpowder, which changed the course of wars. The connection of fertilizers to wealth and slavery is touched upon, along with Germany's development of a synthetic fertilizer that played a role in that nation's confidence to engage in the world wars of the 20<sup>th</sup> century.

Through the invention of this new synthetic fertilizer, converting atmospheric nitrogen into fixed nitrogen, world hunger should no longer exist. But progress came at a deadly cost of greed and power, as industrialization has harmed ecosystems and had mixed effects on human health.

(Recommended for General Science, Ecology, and Environmental Science, grades 4-8)

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