



UNITED STATES
COAST GUARD
ACADEMY

Science Lecture Series

Breaking Our Bad HABits: Biogeochemical Drivers of Toxic Blooms in the Long Island Sound

Rachel Spera

PhD candidate, University of Connecticut-Avery Point

Harmful algal blooms (HABs) threaten marine health, public safety, and economic stability. Extensive prior research has been conducted to alleviate ecosystem strain caused by blooms, including toxin bioaccumulation, hypoxia, hypercapnia, and the creation of “dead zones” for marine life. However, understanding the dynamics that trigger these events requires the identification of specific environmental drivers, which are often only one part of larger biogeochemical processes. Tracing these variables through monitoring efforts enables the construction of predictive models as the first step towards preventing future disasters. An estuary like the Long Island Sound is a primary area of concern for toxic blooms and serves as an ideal location for studying how these events impact our communities.

Wednesday, October 7th, 2026

2000 - 2100

Dimick Auditorium

U.S. Coast Guard Academy

Rachel Spera researches oceanography with a focus on biogeochemical cycling and environmental toxicology at UConn Avery Point. She studied neuroscience and chemistry at High Point University and has an interdisciplinary research background spanning marine science, analytical chemistry, neurology, and clinical psychology. Currently, she is conducting her doctoral research under Dr. Penny Vlahos and is working on a targeted NOAA ECOHAB study that began in 2025.

**If you have any questions regarding the event, please contact Dr. Kanani K. M. Lee
(kanani.km.lee@uscga.edu) for more information.**