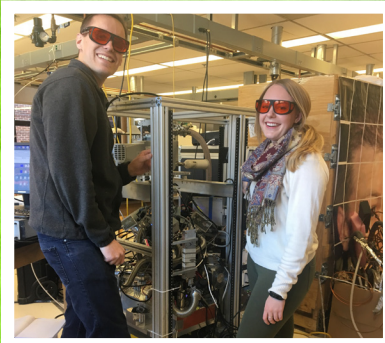


Studying potential risks of airborne algal toxins



CORE QUESTION:

Can toxins generated by algal blooms become airborne?

HAZARDS ON THE BREEZE

As harmful algal blooms become an annual fixture in Lake Erie's western basin, it's more vital than ever to understand the full effects of algal toxins on human and environmental health. Public health officials understand the potential dangers of drinking or swimming in toxin-laced water. A murkier question is whether toxin molecules can become aerosolized, or airborne, in droplets of water mobilized from the lake's surface.

When strong wind, waves, and watercraft stir up a water body, water droplets are aerosolized, or cast into the air as water vapor. If this happens to water containing an algal bloom, the droplets may ferry microscopic particles of algae and algal toxins to the lungs, eyes, and skin of nearby humans and animals. Depending on the wind and wave action, particles could even drift inland, potentially harming humans and animals on shore and in coastal communities. Currently, the potential effects of aerosolized algal toxins on lung and heart health are poorly understood.

ASSESSING THE RISKS

University of Michigan doctoral student Nicole Olson, working with staff from the Michigan Department of

Environmental Quality, will test whether or not wave action can cause algal toxins to become airborne. With water samples taken regularly from Lake Erie and Lake Huron, along with samples from any reported bloom sites, Olson will use a wave simulator to generate airborne water droplets. Sensitive instruments will analyze the droplets for a variety of algal toxins and other organic material.

Her results will help public health officials and water quality managers better understand risks to human and animal health near algal blooms.

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