Scientists study Great Lakes spray

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TRAVERSE CITY — Andrew Ault hopes to coin a term that defines a little-researched phenomena on the Great Lakes.

The expression is "lake spray," or what happens when waves cause air bubbles to rise to the surface of a freshwater lake and burst, sending particles into the atmosphere.

"When those waves break we very likely are generating particles," Ault said. "We don't know a ton about what (those particles) are made of or how they change depending on what's in the water when it's happening."

Ault, an assistant professor in the University of Michigan's Environmental Health Sciences department, is working with a team of researchers to study lake spray on the Great Lakes. The group is taking samples from around the region, including Grand Traverse Bay, to determine if lake spray that occurs near harmful algal blooms carries that toxic material into the atmosphere.

Those particles could be a human health concern, Ault said.

Algae naturally occurs in lakes, but can grow especially thick and bloom when water temperatures are warm and there is an influx of nutrients like nitrogen and phosphorus. Some algae species create toxins when they die that can hurt people, animals or the environment.

Harmful algal blooms have cropped up in Lake Erie in each of the past the four years.

Grand Traverse Bay has never had a harmful algal bloom, said Mark Breederland, a Michigan Sea Grant extension educator based in Traverse City. Breederland has witnessed blooms in Lake Erie.

"It looks like somebody took a can of bright green spray paint and sprayed the surface of the water," he said.

The study's water sample from Grand Traverse Bay will serve as a baseline for now, since the waters haven't been host to a harmful algal bloom, Ault said. That could change as climate change is expected to warm the Great Lakes and change conditions in the bay.

"Every year on Lake Erie we get the harmful algal bloom," Ault said. "As waters warm in the future, the harmful algal blooms will have better conditions so they'll likely (happen) farther and farther north."

The University of Michigan researchers built a model chamber to mimic Great Lakes wave activity. That's where they'll run the initial set of samples. Ault hopes to have data collected by the end of summer 2016, in both the model chamber and using a mobile lab scientists can move from site to site.

Breederland looks forward to learning the study's results. He said lake spray is an emerging area of research.

"It's probably a little-studied part of the Great Lakes, so it will be interesting to see what the research will actually say," Breederland said.