"Our findings suggest there is a fundamental tradeoff when growing algal biofuel," said Cardinale, a professor at the U-M School for Environment and Sustainability.

"You can grow single-species crops that produce large amounts of biomass but are unstable and produce less biocrude. Or, if you are willing to give up some yield, you can use mixtures of species to produce a biofuel system that is more stable through time, more resistant to pest species, and which yields more biocrude oil."

Authors of the *Global Change Biology* paper, in addition to Godwin and Cardinale, are U-M's Aubrey Lashaway and David Hietala, and Phillip Savage of Pennsylvania State University.

Members of the same research team have published other recent papers that examine the benefits of diversity in algal biofuels systems for minimizing fertilizer use, recycling wastes, and improving the chemical properties of biocrude.

"Collectively, these results show how applying principles from ecology could help in the design of next-generation renewable fuel systems," Godwin said.