



Dear Everyone:

Maritime archaeologist Wayne Lusardi of the Thunder Bay National Marine Sanctuary in Michigan is gliding over an otherworldly “lakescape” at the bottom of the Middle Island Sinkhole in Lake Huron.

Here, under cold temperatures (~9°C water) and dim sunlight (only ~5% of surface illumination reaches the bottom of the sinkhole, at ~25-meter depth), a dynamic mosaic of cyanobacterial (purple) and chemo-synthetic (white) mats flourish in groundwater containing high sulfur and low oxygen. Extreme ecosystems such as these not only contribute to Earth’s biodiversity but also may add—in ways yet unknown—to the biosphere’s overall physiological potential.

Hovering over this impressionistic underwater living canvas, Wayne is getting an undisturbed overview of the waterscape below with a GoPro

camera before scientific operations commence. Could similarly bizarre microbial mats be awaiting us in the waters of the extraterrestrial lakes of Titan or the oceans of Europa?

—**Phil Hartmeyer** and **Stephanie Gandulla**, Thunder Bay National Marine Sanctuary, Office of National Marine Sanctuaries, NOAA, Alpena, Mich.; and **Ian Stone**, **Tony Weinke**, and **Bopi Biddanda**, Robert B. Annis Water Resources Institute, Grand Valley State University, Muskegon, Mich.

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