

A closer look at the Hudson Canyon shows why the canyon is critical for fish

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A series of newly discovered pits in the bottom of the Hudson Canyon, 100 miles southeast of New York Harbor, may be a key ingredient for the abundant and diverse marine ecosystem in and around the canyon, according to research by scientists from Rutgers University and the National Oceanic and Atmospheric Administration.

Peter Rona, professor of marine science at Rutgers' Institute of Marine and Coastal Sciences, and Vincent Guida, a research fisheries biologist at NOAA's Northeast Fisheries Science Center, led the cruise which found the pits up to hundreds of feet in diameter and tens of feet deep this summer. Their findings will be presented at the fall meeting of the American Geophysical Union, Dec. 14-18, in San Francisco.

"Finding these pits is new for this area," Rona said. "They've been found in certain other places, such as the Gulf of Mexico. There, they've been related to the dissolution of gas hydrates in the sediments below the sea floor."

When enough [gas hydrates](#) - [methane gas](#) frozen in ice crystals in muddy sediments beneath the seafloor - have dissolved, the sediments in which they've been trapped may collapse, forming pits. Rona suspects that may have happened in the Hudson Canyon. During their cruise on the NOAA Fisheries Survey Vessel Henry B. Bigelow in August, the researchers recovered water samples from the canyon. These samples, still being analyzed by Mary

Scranton, professor of marine science at Stony Brook University, indicated abnormally high levels of methane in water taken from above at least one of those pits.

All this, Guida said, may benefit much of what lives and swims in the water column in the canyon, from bacteria to tilefish.

Methane is a source of energy that certain bacteria use to manufacture carbohydrates (sugars and starches) in order to nourish themselves. The bacteria, in turn, are consumed by other organisms like clams and worms.

They, in turn, may support the larger animals up the food chain, including golden tilefish, which are the focus of a major fishery, and therefore of Guida's professional attention. Guida said he found what appear to be the burrows of tilefish in the canyon. Generation of methane may have direct environmental effects, too. It is not only important as a chemical energy source to enable bacteria to nourish themselves at the base of a food chain, but is also a potent greenhouse gas that can contribute to global warming. Net benefits or costs of methane release to the ecosystem depend on rates of production and consumption, which have yet to be measured.

Source: NOAA

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