

Scientists: Mussels, without noses, use smell to find homes

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In this May 23, 2014 photo, mussels in a mussel patch are seen at Tidal Falls Preserve in Hancock, Maine. University of Maine scientists say mussels have a strong sense of odor and use it to protect themselves. The shellfish are sought after by crabs and fish, and they use their awareness of smell to implant themselves in mud that the predators don't frequent. (Scott Morello via AP)

Mussels don't have noses, but two Maine scientists believe the dark

shellfish rely on smells when choosing where to set up their homes.

The scientists say they have discovered that mussels use their ability to detect [odor](#) as very young larvae. They swim toward odors from adult mussels and away from odors from predators such as crabs, the scientists said.

Scott Morello, a visiting researcher at the University of Maine Darling Marine Center in Walpole, said he found that mussel larvae can recognize and respond to a broad range of odors when they decide where to settle in the wild.

He said exactly what part of the mussels is able to receive smells is unclear, but they likely learned to respond to odors through evolution due to years of being hunted by animals such as green crabs and dog whelks. And they can do this despite lacking a brain or cognitive ability, he said.

"They can smell, for all intents and purposes," Morello said. "They are doing everything they can so they don't end up settling near a predator."

Morello and Phil Yund, senior scientist at the Downeast Institute for Applied Marine Research & Education, conducted the research. It was published in the *Journal of Experimental Marine Biology and Ecology* in its July 2016 issue, which is out now.

The [mussels](#) show the same behavior in aquaculture settings, the scientists said. Mussels typically settle on hard surfaces, like rocks, in the wild.

Stephen Archer, a biogeochemist with Bigelow Laboratory for Ocean Sciences who was not involved in the study, said it's common for even very primitive organisms to react to chemical cues, like odor, in the

ocean and coastal environments.

"A lot of organisms in the ocean react to these cues and use them to make choices to navigate," Archer said. "There's a lot of information there."

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