Oysters Open and Close Their Shells as the Moon Wanes and Waxes

A new study suggests the mollusks may widen and narrow their shells depending on movement of plankton, which shifts with the lunar cycle.

Shucked oyster shells lay beneath the moonlight at Fanny Bay Oyster Company on Vancouver Island in British Columbia, Canada. (Michael Wheatley / Getty Images)

By **Jason Daley**

SMITHSONIANMAG.COM INST.

Plants and animals follow all sorts of biological clocks—seeds sprout when soil temperatures and day length are just right, internal circadian rhythms regulate the release of hormones in humans and other mammals, the lives of some sea creatures are ruled by the ebb and flow of tides and even moonlight is an important cue for some species to mate or hunt. Now, a new study published in the journal *Biology Letters* suggests oysters are one of the creatures that keep tabs on the moon, and that the lunar cycle influences how widely they open their shells.

Nicola Davis at *The Guardian* reports that researchers discovered the oysters' lunar love affair after tracking 12 Pacific oysters, *Crassostrea gigas*, that they submerged along the French coast. They then watched them carefully through three lunar cycles, each of which lasts 29.5 days. Using electrodes, they measured how widely the oysters opened their shells every 1.6 seconds, then compared that data with data about the moon's cycle.

They found the oysters paid attention to the phases of the moon: as the moon was waxing, or growing fuller, the oysters narrowed their shells—never closing them completely. And when the moon started waning, or receding to the new moon phase, they widened their shells back up.

What that suggests is the oysters may rely on a internal lunar clock rather than direct cues, like the intensity of the moonlight. If that was the case, they would open their shells equally during the first quarter moon and the last quarter moon since the intensity of the light would be similar. But the oysters reacted differently to those phases suggesting they are following an internal calendar rather than reacting to the moonlight itself.

So why would the oysters care about the phases of the moon? Laura Payton, a co-author of the study from the University of Bordeaux, tells Davis at *The Guardian* she has a guess. “We know that oysters open their valves when there is food,” she says, and previous research has shown that the movement of plankton, which oysters filter out of seawater and consume, is influenced by moonlight.

The lunar cycle, however, is not the only one that the oysters follow and the bigger question is how the mollusks' timing fits together, David Wilcockson, an aquatic biologist at Aberystwyth University who was not involved in the study, tells Davis.

“We know that, for example, tidal, lunar and circadian clocks appear to have separate mechanisms, but they are to some extent linked – and we don’t know quite how and to what level,” Wilcockson tells Davis.

Oysters are not the only sea creatures enchanted with the moon. Ferris Jabr at *Hakai Magazine* reports that dozens of species of coral use moonlight as a cue to release their bundles of eggs and sperm en masse. Some species of crabs also use moonlight intensity to signal the start of their mating migrations. Salmon, squid and the aforementioned plankton also sync their life cycles with the moon.