

# Geoscientist finds beavers play a role in climate change

July 18 2013, by Bob Yirka

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North American beaver (*Castor canadensis*) Credit: Wikipedia.

Ellen Wohl, a geology professor at Colorado State University, has published a paper in the journal *Geophysical Research Letters*, describing the role beavers play in climate change. In a field study she undertook, she found that carbon is sequestered when beavers build dams and is released after the beavers abandon the dams they've built.

Most people are aware that [beavers](#) build dams. They're responsible for river and stream blockage across many parts of North America. What has not been known, until now, is what sort of impact beaver dams and their backed up water have on carbon sequestering.

Carbon of course, exists in the wood of trees. When trees die and decompose, that carbon is released into the atmosphere. But what happens when the wood of a dead tree becomes submerged beneath the water of a [dam](#) built by a beaver? That's what Wohl set out to learn.

In a field study in Colorado's Rocky Mountain National Park, Wohl took samples from areas known as beaver meadows—the land that has become submerged or wet due to dams backing up [flowing rivers](#) or streams. She collected 29 sediment samples from the wet areas around 27 streams in the park. Upon analysis, the sediment turned out to be harboring 12 percent carbon by weight. This was in stark contrast to sediment samples she and colleagues collected last year in beaver meadows where the dams had been abandoned allowing the land to dry. There the samples revealed [carbon content](#) of just 3.3 percent. Wood buried beneath water and sediment decays more slowly than wood left on dry land. Thus, by building dams, beavers cause the carbon in the wood to be sequestered—at least until they abandon the dam and allow the water behind it to dry up.

Wohl's data suggests that if all the beaver meadow land now dried due to abandoned dams were still wet, the amount of additional carbon sequestered would add up to 2.7 million metric tons. Much of that

[carbon](#) was released in the years shortly after the North American continent was colonized—trappers significantly reduced the population of beavers leaving millions of dams abandoned.

Carbon sequestered by beaver dams hardly registers on a global scale of course—almost ten billion tons of it is added to the atmosphere worldwide each year. Nonetheless, Wohl's study shows that at least some of those emissions can come from some surprising places.

**More information:** *Geophysical Research Letters* [DOI: 10.1002/grl.50710](#)

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