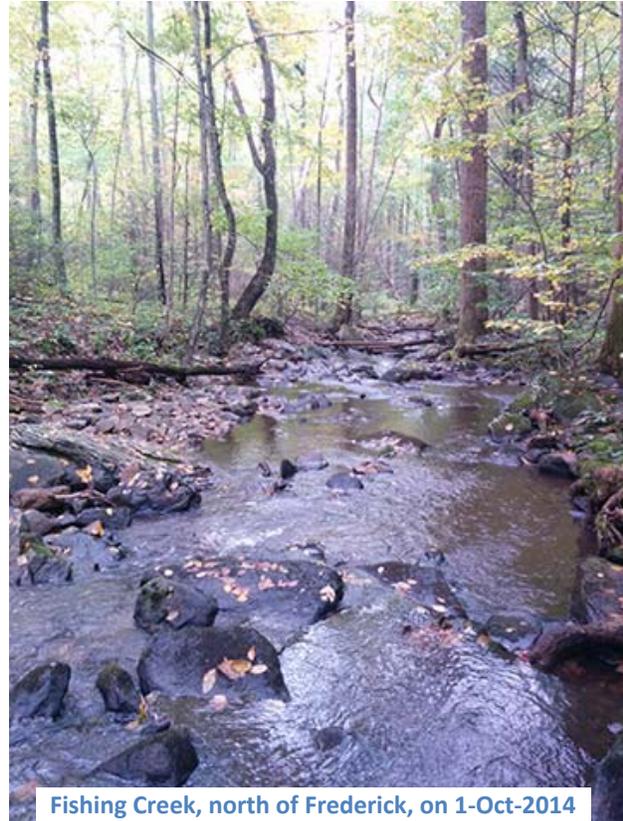


## Bubbling Brooks and the World They Hide Beneath their Depths

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While to the untrained eye a stream may seem like a simple uniform ecosystem, it has many interacting pieces that come together to form a diverse, complex environment. On the bottom of the food chain we have many allochthonous inputs from the surrounding environment such as leaves and fallen branches from trees hanging over the stream. Certain macroinvertebrates, called shredders, have mouthparts dedicated to the shredding of plant materials. They feed on these important sources of carbon and break down the detritus into fine particles that pass downstream. Shredders tend to live in the still pools of water and at the beginnings of riffles where the leaves pile up. They are safe hiding under rocks and leaves and serve to keep the stream from clogging up with plant debris



Fishing Creek, north of Frederick, on 1-Oct-2014

while providing fine particulate organic matter for filter feeders downstream to consume.

Headwater streams such as Fishing Creek have a lot of shredders because they tend to be surrounded by trees dropping plant material into the stream, providing plenty of food. Other species prefer to wait for their food to flow by in the ripples of the stream. Collector-filterers attach to the rocks in swiftly flowing sections and grab debris to form their protective cases as well as to obtain food. Predatory invertebrates are also waiting to grab any organisms that float by with their raptorial claws and jaws. The organisms in the riffles are often adapted to holding onto the rocks with claws on their legs or hooks on the end of their abdomens. The photo above shows a representative section of Fishing Creek, with alternating sections of still pools and swiftly flowing riffles. Many shredder and collector macroinvertebrates get swept into the riffles when trying to feed on the clumps of leaves and become food for the predators waiting in the rocks. This demonstrates how the different microhabitats of the stream are interwoven and interact with each other even while appearing uniform and peaceful.