

# Kahena Hulili

## Riffle

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A riffle is where the stream is shallow and moving fast. The water is broken by boulders and rocks. In the riffles, leaves, sticks and tree roots pile up, and this provides an important habitat where stream insects find food. (Chasse, 2007).

Many stream animals live in this community. The *'o'opu nōpili* is just one of the fishes that prefer the fast-flowing water found in riffles. Many scientists use the presence of the *'o'opu nōpili* as a good indicator of a healthy stream.

When the goby is young, its body is transparent. It enters the freshwater stream and remains in the *muliwai* (estuary) for 36 hours. During this period, the *'o'opu nōpili* will make a fantastic transformation. The mouth will shift from the front of its head to the underside. The lips will broaden, allowing the *'o'opu nōpili* to use the mouth as a second suction disk for climbing!

After its transformation, the *'o'opu nōpili* will inch its way upstream from the *muliwai*, using its pelvic sucking fin and sucking mouth. Once the *'o'opu nōpili* reaches its adult habitat, it uses its pelvic suction disk to latch onto rocks while it uses its mouth to scrape algae and plankton from the rocks (State of Hawai'i Division of Aquatic Resources, 2007).

The *nōpili* hides under rocks and in crevices from its predators. To protect itself, it will change color to match its surrounding environment. Its suction cup allows it to climb to reaches of the stream where few predators can follow. The diet of the *'o'opu nōpili* changes from omnivore to herbivore when it becomes an adult and the pigment in its skin deepens.

The *'ōpae kala'ole* is an endemic freshwater shrimp that also makes its home in these waters. It is adept at climbing and lives in areas of the stream where the water is fresh and fast moving. This native shrimp has pinchers with bristle-like hairs. When the pinchers are extended, they form a catcher's mitt, snagging food particle from the currents.

