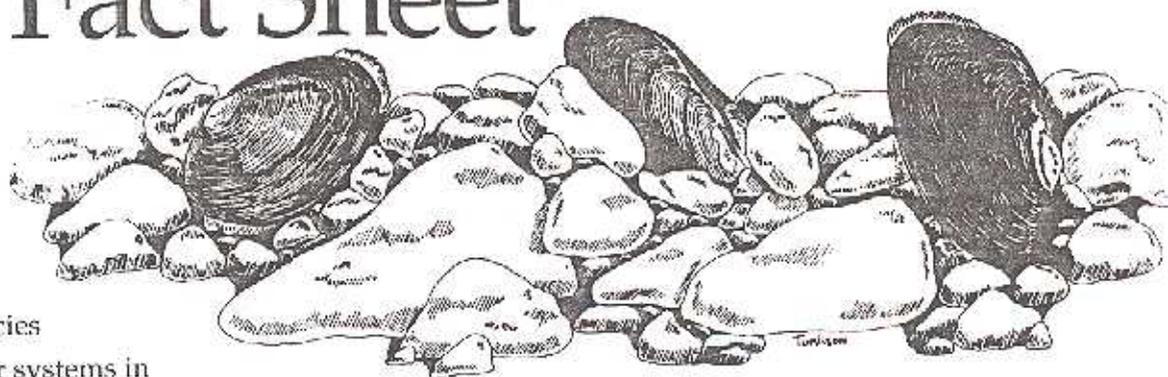


# Freshwater Mussel Fact Sheet



## *Diversity*

There are approximately 300 North American freshwater mussel species that inhabit many river systems in the United States. About 60 species occur in the Apalachicolan Region, which includes Eastern Gulf Slope river systems from the Escambia to the Suwannee rivers in southeast Alabama, southwest Georgia, and northern Florida. Half of these mussel species are found nowhere else but the Apalachicolan Region.

## *Status*

As a group, North American mussels may be the most endangered group of organisms on the continent. Recent studies show that more than 70% of mussel species are in need of protection. About 12% of the known species have already been declared extinct. Nationally, 70 species are federally listed or proposed for listing. An additional 50 species are candidates for federal protection. In the Apalachicolan Region, three species have already been declared extinct, seven species have been

proposed for federal protection, and six more species are candidates for federal protection. Recent studies have documented very little reproduction in many populations of Apalachicolan Region species, bringing into question the potential for long-term survival of mussel populations there.

## *Habitat*

Mussels are relatively immobile organisms, inhabiting a variety of stable bottoms, such as sand, gravel, cobble, boulders, or combinations of these materials. Most mussel species live in rivers and require flowing water to live and reproduce. Few mussel species inhabit lakes or still waters or mud bottoms.

## *Ecology*

Mussels continuously siphon water from their surroundings,

filtering microscopic organisms for food. Because of their non-selective feeding method, they accumulate chemicals in their bodies and shells, including contaminants present in their environment. As a result, they serve as good indicators of the health of the streams they inhabit. Mussels are a staple in the diets of muskrats, as well as other mammals, birds, fish, and turtles.

## *Life History*

Males release sperm into the water and rely upon the current to carry them to the female. The female filters the sperm from the water and her eggs are fertilized. After the eggs mature, larval mussels are released into the water. Incapable of surviving on their own, these larval mussels must attach themselves to the gills or fins of a fish. The host fish provides a free

ride to a new location and food for a few weeks until the larval mussels are mature enough to drop off and start life on their own. Several species of fish may serve as host for a single species of mussel. Those larval mussels that do not find a host fish will die. Because of this, mussels have developed means of ensuring that their larval forms come into contact with the proper fish host. Some mussels have body parts that attract potential hosts by actually resembling small fishes or insect larvae. Other species "package" their larvae to look like worms or even fish tethered on mucous strands, luring hungry fish into becoming mussel "babysitters."

### *Commercial Uses*

Historically, mussels supported a pearl button industry that collapsed with the advent of plastic buttons. Today, mussels support two commercial industries, cultured pearl for fine jewelry and biological supply for academic use. Thousands of tons of mussel shell are exported annually for use in the cultured pearl industry. One source has estimated the value of annual mussel shell exports at \$60-\$80 million. These exports help support the U.S. cultured pearl and fine jewelry industry with

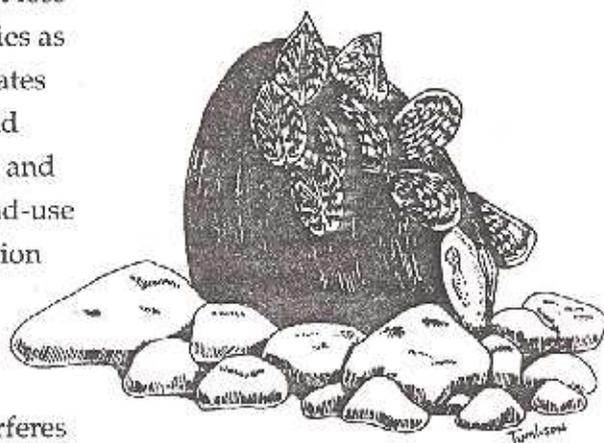
annual sales of \$700 million, and a worldwide cultured pearl and fine jewelry industry with annual sales in excess of \$5 billion. This translates into approximately 10,000 jobs in the mussel shell industry and 150,000 jobs in the cultured pearl industry. Mussels are also sold to biological supply companies that supply them to schools for anatomy studies.

### *Threats*

Mussels are threatened by loss of suitable river habitat. Habitat loss is attributable to such activities as dam construction, which creates impoundments; dredging and other channel modifications; and sand and gravel mining. Land-use practices that create soil erosion have contributed to excessive sedimentation in many streams inhabited by mussels. Sedimentation interferes with the mussels' filter-feeding and covers the stream bottom with silt, which makes the mussels' environment unsuitable. Any runoff or discharges that carry chemical contamination into streams poison the filter-feeding mussels. In addition, non-native mussel species, such as the zebra mussel, are out-competing native mussel species. Also contributing to the plight of mussels is the loss of fish species that serve as hosts for larval mussels.

### *Conservation*

Protecting water quality and suitable bottom habitats is the most effective way to conserve mussels. Establishing stream-side buffer zones near construction areas will help protect streams from sedimentation. Buffers also stabilize banks and screen out contaminants from upland areas. Control of contaminated runoff and permitted discharges will ensure high water quality for mussels. Much is yet to be learned



about mussels, their habitat requirements, and their reproductive cycle, so research is another key to survival. Public education is also a survival key. The alarm that must be sounded, loud and clear, is that loss of these animals is a clear indication of a problem with the environment that all the Earth's creatures, including ourselves, depend upon for survival.

