

CACAPON NATURAL HISTORY

The Rock Bass is an Indicator Species

by George Constantz

The rock bass (Ambloplites rupestris) is most abundant in clear streams with rocky, silt-free substrate. Several field studies have shown that this fish disappears as its river accumulates sediment. The great abundance of rock bass in the Cacapon sets our River apart from other, muddier, rivers of the region. The purpose of this article is to introduce this important indicator of river health.

The rock bass is a member of the sunfish family (Centrarchidae), a diverse group of 30 highly colored, freshwater fishes. It is also called goggle-eye and redeye because of its obvious orange-to-red eyes. Originally restricted to streams west of the Allegheny Front, an escarpment about 40 miles west of the Cacapon, our River's rock bass population probably started as transplanted stock.

The rock bass inhabits rocky areas in streams; it is no accident that its specific name "rupestris" is Latin for "living among the rocks". Deep, rocky pools below permanently flowing riffles are favored. An opportunistic carnivore, it eats adult and immature aquatic insects, crayfish, minnows, and even young rock bass. Goggle-eyes forage most actively at dusk and night.

Rock bass spawn between mid-May and mid-June. In typical sunfish fashion, the male fans out a shallow depression 8-10 inches in diameter over sand or gravel. The solitary nest is usually in shallow water, near a boulder or other large object. Nest construction is completed on the same day it began, and within 24 hours males obtain mates. Spawning lasts about 1 1/2 hours. Eggs and milt are released simultaneously by the reclining female and an upright male, respectively. After spawning, mother leaves the area. Females visit several nests and eventually lay a total of 3,000 - 11,000 eggs.

Fresh eggs are adhesive and a jewel-like translucent golden. During the 15 days of embryonic development, father faithfully guards and fans his eggs. After hatching, the young stay within the nest for about 10 days, often rising to form a churning cloud. Father stays on guard until all the fry simultaneously leave the nest.

Adult rock bass average 6-8 inches long, 1/2 lb., and attain 5 years of age. A rare individual may reach 14 inches, 2 lbs., and 10 years.

Goggle-eyes strike hard and give a vigorous fight, making them good sport fish on light tackle. Their flesh is white, firm, and delicious. In the Cacapon, the rock bass is exceeded in popularity among anglers only by the smallmouth bass.

Why do rock bass populations decline as their home stream accumulates sediment? I contacted Dr. Douglas Noltie at the University of Guelph, Ontario, who studied stream-dwelling rock

bass for his Ph.D. project. He suggested several possible causes:

(1) As silt accumulates, gravel disappears. Gravel is the preferred nesting substrate for rock bass.

(2) Silt clogs the spaces among gravel particles. These little holes provide habitat for crayfish, a primary food for rock bass.

(3) Streams experiencing increased siltation are probably being degraded in other ways. For example, accompanying warming could favor suckers, which eat rock bass eggs. Eutrophication, which is the increase of dissolved nutrients, promotes algal blooms that fouls rock bass nests.

(4) Lastly, the parenting behavior of male rock bass may predispose them to interference by silt. A male accepts eggs during only a brief period of time. The male fans off the silt until the eggs hatch. Thereafter, fry hover atop the accumulating silt. During the interval between hatching and fry dispersal, excessive silt could smother the young.

The bottom line is that we just do not know exactly why sediment forces out the rock bass. Most likely, a combination of factors is involved. However, because the relationship between silt and rock bass is undeniable, we have designated the rock bass an indicator species: The abundance and health of the rock bass is a vital sign of the Cacapon's health. To this end, I will gratefully accept freshly caught rock bass specimens for scientific (not gastronomic) study.

Pine Cabin Run Ecological Laboratory

Route 1, Box 469
High View, WV 26808

Address Correction Requested

Non-Profit Org. Bulk Rate 26808-9704 U.S. Postage PAID High View, WV Permit #5
