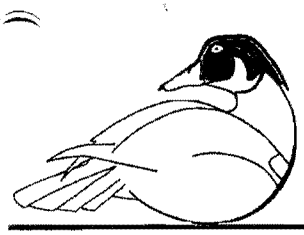
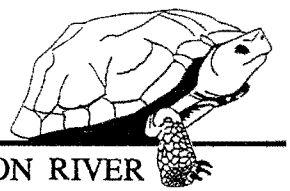


Cacapon



DEDICATED TO THE ECOLOGICAL PRESERVATION OF THE CACAPON RIVER

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FEATURE ARTICLE

Fishes of the Cacapon River

by Gerald E. Lewis, District Fisheries Biologist
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I work an eight-county district that includes the highest (Pendleton Co.) and lowest (Jefferson Co.) points in West Virginia. Also known as the Potomac Highlands, this area offers a variety of stream ecosystems - from high, swift, cold trout brooks to low, sluggish, warm, carp-filled, rivers. The district includes three large rivers, the Shenandoah, the South Branch of the Potomac, and the Cacapon.

In this article, I will share my impressions of the Cacapon, its general ecological characteristics, fish community, and sport fishery. I will place these features in perspective by making comparisons with the district's other two major rivers.

To help you with jargon, I have included a glossary at the end of the article.

General Ecology

Let's first look at some fish-related ecological features of the Cacapon.

How productive is the Cacapon? The waters of the Shenandoah contain the greatest concentration of dissolved nutrients, like nitrate and phosphate (primarily from farm run-off), as well as carbonates, while the Cacapon's waters carry the least; the South Branch registers an intermediate score. Thus, the resident organisms' growth, which depends on the availability of dissolved nutrients, is slower in the Cacapon than in the other two rivers.

Simply, the nutrients in a gallon of Cacapon River water would support slower growth and less weight of aquatic organisms, such as plankton, insects, and fish, than would an equal volume of South Branch or Shenandoah water.

How clear are the waters of the Cacapon? The Cacapon is the most sediment-free river in the district. In

part because of its low silt load, the Cacapon's substrate features more clean rubble and cobble, and less mud than other local rivers. Clean substrate benefits fishes that attach their eggs to objects on the bottom. In contrast, you can not walk anywhere in the South Branch without stirring up thick plumes of mud. A high concentration of phytoplankton and heavy sedimentation cause high turbidity in the Shenandoah.

What was the effect of the 1985 flood on the River's fishes? As far as I can tell, that flood, which was at least a 500-year event, had no effect on the quantity or quality of fishes in the Cacapon River. In the South Branch, however, more than 50% of the riparian trees were ripped out and the water sheared away huge volumes of soil from banks, consequently great tonnages of sediment were left on the bottom. The high sediment load initially reduced the levels of invertebrates, which serve as fish food. Both the riparian and benthic changes could be depressing the populations of some South Branch fishes.

Fish Community

In terms of numbers of individuals, the single most abundant fish species in the Cacapon is the redbreast sunfish (Lepomis auritus). In the South Branch and Shenandoah, the golden redhorse sucker (Moxostoma erythrurum) and the pumpkinseed sunfish (Lepomis gibbosus) are numerically dominant, respectively. In terms of biomass, the relative abundances are: redbreast in the Cacapon, and several sucker species (e.g., redhorse, hog, white suckers) in the other two rivers. The reasons for this difference are unclear, although it may be related to the contrasting levels of sediment mentioned previously.

Another interesting difference is that the rock bass (Ambloplites rupestris) is plentiful in the Cacapon, but only sparse or fairly abundant in the other two rivers. This contrast almost surely reflects differences in substrate quality. Rock bass require clean gravel for spawning, a resource less readily encountered in other regional rivers. (See "Cacapon Natural History" column.)

The inventory of Cacapon fishes, by number of species in each family, includes: 3 trouts, the pickerel, 4 suckers, 13 minnows, 5 catfishes, the American eel, 8 sunfishes (including bass), 3 darters, and 1 sculpin. These 39 species are simply a subset of the Potomac River's larger ichthyofauna; that is, all the fishes found in the Cacapon are part of the Potomac's more comprehensive list. The Cacapon hosts no rare or endangered fishes.

In the Cacapon, darters and sculpins hug the substrate in the riffles, whereas suck-

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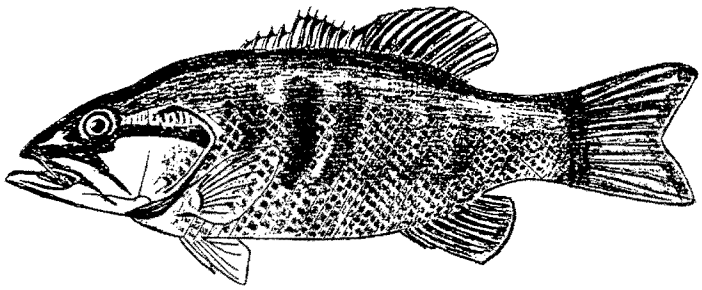
ers, sunfishes, and smallmouth bass dwell in the pools. This pattern is general throughout the rivers of the mid-Atlantic region.

We know precious little about how the Cacapon's fish community has changed over the last century. As George Constantz would say, we do not have an historical baseline for the Cacapon's fish community.



Micropterus dolomieui

Sport Fishery

Not unexpectedly, there is no commercial fishery on the Cacapon, not even a mom-and-pop roadside fish market. In terms of its sport fishery, though, I rate the Cacapon extremely high. In fact, when people ask me where to go for nice warmwater fishing, I recommend the Cacapon over any other large stream in the district.

In terms of the number of fish caught per cast, the Cacapon scores highest. You can't beat its rock bass, redbreast sunfish, and smallmouth bass (Micropterus dolomieui). I would rate the Shenandoah and the South Branch second and third, respectively.

Although as I previously mentioned, productivity of the Cacapon River is not as high as the Shenandoah or South Branch, its abundant rock cover provides excellent fish habitat, which accounts for the Cacapon's excellent record of fish caught per hour.

The premier sport fish in local streams is the smallmouth bass. In part because of differences in the dissolved nutrient concentrations, bass grow fastest in the Shenandoah, slowest in the Cacapon, and at an intermediate rate in the South Branch. Although Cacapon bass may take longer to reach large size, the River nevertheless yields excellent numbers of trophy-sized bass (3 pounds or greater). During the 3 - year period of 1986-1988, 32 trophy-sized bass were registered with my Department from the Cacapon, 38 from the Shenandoah, and 88 from the South Branch. On the basis of water area, the Cacapon comes in second to the South Branch in terms of recent trophy bass citations.

In rivers generally, as well as in the Cacapon, larger fish live farther downstream. This is because habitat volume, specifically the width and depth of pools, increases farther downstream. On average, bigger smallmouths are hooked in downstream (Morgan Co.) than upstream (Hardy Co.) reaches of the Cacapon.

Although the Cacapon supports a warmwater fishery, a few trout can be found in some of its cool, spring-fed pockets. For example, brown trout have been caught in the Cacapon near the entrance of Cold Stream, a tributary downriver of Capon Bridge. Trout do not reproduce successfully in the River, though.

What man-made pollutants are currently degrading the Cacapon's fishery? Even

though I have stated previously that the Cacapon is relatively free of silt, what sediment there is causes the most serious ecological damage. Occasional slugs of silt smother algae, insects, molluscs, and other sessile organisms that serve as fish food. Further, mud smothers the fish eggs that are scattered by species such as walleye and pickerel. Some fishes, like sunfishes and smallmouth bass that lay their eggs in circumscribed nests and then sweep the eggs clean of silt, can tolerate modest amounts of silt.

Sewage pollution and acid precipitation are having no detectable effect on the Cacapon's sport fishery. However, non-point source pollution, primarily agricultural runoffs carrying fertilizer, herbicides, and pesticides, stimulate nuisance growths of algae and could be killing some fish indirectly by having a deleterious effect on the benthos.

How can the riverfront property owner improve the quality of fishing along his stretch of the Cacapon? The single most important factor is to protect and improve the vegetation of the streambank. Don't build near the River, keep cattle off the bank, promote the growth of riparian vegetation. As a general principle, the integrity of the riparian strip is the single most important determinant of a river's water quality and thereby of the health of its fish populations. The width of the riparian strip should be at least 30 feet, preferably 100 feet or more.

Preserving riparian areas, though, is a tough legal problem. In Jefferson Co., WV we are pursuing a trial idea jointly with the USDA's Soil Conservation Service. In return for fencing and excluding cattle from their streambanks, riverfront property owners are paid a fixed amount per acre per year.

Concluding Feelings

The most interesting aspect of fishing the Cacapon is the fulfillment I get from the total experience. Because this River is more pristine than others in the district, the canoeing adventure on the Cacapon means more. There are still stretches without development, feelings of remoteness.

But aesthetically I'm worried. The quality of a day on the River is more than just a function of the number of fish caught per hour. Rather, the sport of fishing is an excuse to get out and enjoy a deeper personal experience. If the landscape gets too cluttered, the fishing experience is bound to suffer ... regardless of the number of trophy bass.

Glossary

benthos - the community of organisms on and in the bottom of a body of water

biomass - the aggregate weight of a particular set of living things at a given time

cobble - round rocks 64-256 mm in diameter; smaller than rubble and larger than gravel

community (=ecological community) - the set of species found within a defined area

fish - one individual fish, or one species of fish

fishes - two or more different

species of fish
non-point source pollution - man-made toxins that run off the land into a stream, in contrast to pollutants that enter a stream through a pipe (point source)
phytoplankton - microscopic floating algae
production (=ecological production) - increases in the number or biomass of organisms per unit time
riparian - terrestrial habitat along a shoreline
rubble - rocks smaller than boulders and larger than cobble
sessile - non-moving, attached
substrate - non-living matter that makes up the bottom of a body of water
turbidity - a measure of water clarity

A Note about Gerry Lewis

It is a pleasure to introduce Gerald E. Lewis, the Fisheries Biologist for District 2 since 1966. Gerry was raised in Mineral County, WV and received an M.S. degree in Fisheries & Wildlife Management from West Virginia University. Gerry has always shared freely his data and insights with me, a generosity I gratefully acknowledge.

George Constantz

Laboratory Needs

filing cabinet
foot locker
STATA, statistical software
2" x 6" x 8' lumber

Reflections of a Cacapon Angler

by Gary West, Herndon, VA

A friend once asked, "Why do you like to go fishing on the Cacapon River all the time? Doesn't that get boring?" I guess he pictured me sitting on the bank with my line out waiting for a fish to bite. I invited him to come along, to see just what I consider to be "fishing" on the Cacapon. He's been back several times, and he now understands why I spend about 25 weeks a year enjoying this River.

To me, fishing is canoeing down the Cacapon River, drifting quietly with the current; hearing a bobwhite's telltale call; seeing white-tailed deer fording the River single file, as they stop to drink from the clear, cool water; being startled by a beaver as he slaps his tail only a few yards from my canoe; and watching a wood duck hen lead her chicks up a bank to safety, away from this strange intruder.

As one of her ducklings falls clumsily back into the River, I think of my three year old son learning to walk. And as my mind drifts, I think of the future when he will fish the River with me. I'll be his guide in this outdoor wonderland.

Being a three year old must be an adventure in itself, but when my son and I go down to the River, this endless variety is ours to explore.

On a hot summer day we