

Jewels in our Waters

by Sam D. Hamilton

At the crack of dawn, as you slice through the calm river with quiet paddle strokes, your canoe glides upstream through a bank of fog that will slowly burn off with each cast of your fishing rod.

Why does everyone love our beautiful southern rivers, creeks, and lakes? I believe the answer is a personal one. For some, it is relaxing. For others, it is enjoying a day of fishing with your dad,

exploring a new area, or just having fun on a hot summer day. Everyone may not know, however, about the wealth of aquatic life hidden in our waters.

Therefore, it is my pleasure to introduce an edition of the *Endangered Species Bulletin* devoted to the conservation of southeastern aquatic species and the ecosystems upon which they depend.

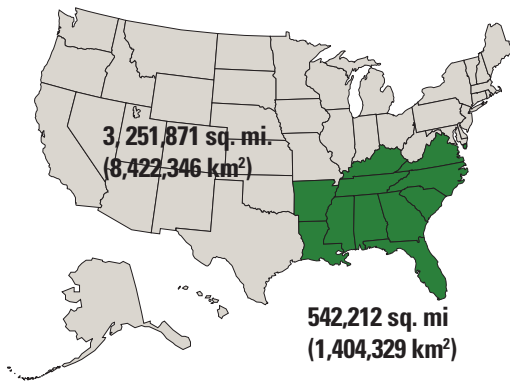
The rivers that run through the Southeast support a variety of life. Would you be surprised to discover that hiding in some of our southeastern rivers are fish that rival in beauty those found on coastal coral reefs? People generally are unaware of the vast biological diversity contained within the rivers and streams of the southeastern United States. Many scientists, however, are well aware of the treasures we have and are concerned about their future.

This cypress swamp, below, part of Bond Swamp National Wildlife Refuge in Georgia, is home to a variety of freshwater and anadromous fishes, including the endangered shortnose sturgeon.

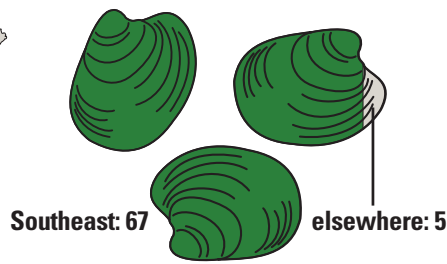
USFWS photo by John and Karen Hollingsworth



Total Area



Listed Mussels



Listed Fishes



Constituting just 14.3% of the area of the United States, the southeastern states are home to 30.9% of its listed fishes, and 93% of its listed mussels.

The richest temperate freshwater fish fauna in the world (approximately 530 taxa, or 66 percent of the freshwater species of North America) occurs in the southeastern states of Arkansas, Louisiana, Mississippi, Alabama, Florida, Georgia, North and South Carolina, Virginia, and Kentucky¹. Of the more than 110 federally listed fishes, 34 taxa (18 endangered, 16 threatened) are found in the Southeast. The situation is even worse for mussels: 72 species of mussels are federally listed nationwide, and 67 of these (59 endangered, 8 threatened) are in the Southeast. Overall, the largest concentration of freshwater biodiversity in North America is found in just four southeastern states: Alabama, Georgia, Tennessee, and Kentucky².

Although the Southeast is an epicenter of aquatic biodiversity, it is also an epicenter of imperilment and extinction. Historically, the causes for the decline of southeastern aquatic species included dam construction, dredging, channelization, mining, deforestation, and pollution. Today, actions by our partners, such as the Tennessee Valley Authority, are beginning to lessen the

impact of some of these threats. However, our aquatic species still face increasing threats. As our nation's cities continue to grow, water demands continue to skyrocket, destruction of habitat continues, nonpoint source pollution (such as sedimentation) increases, and impacts resulting from the introduction of nonnative (or invasive) species continue to devastate native aquatic species.

How can we conserve southeastern aquatic species and their habitats?

1) First, we must answer this question: how many aquatic species are hidden in our southeastern waters? Through advances in both technology and theory in systematic and evolutionary biology, scientists are beginning to discover the true extent of biodiversity in southeastern waters. (See "Cryptic Biodiversity" in this edition of the *Bulletin*, page 24.)

(2) We must continue to work with our partners. With broad-based landowner support, many hours of work from groups like The Nature Conservancy and The World Wildlife Fund, cooperation from local governments, and the technical expertise and assistance from state agencies like The Tennessee Wildlife Resources Agency and groups like Conservation Fisheries, Inc., we have been able to restore some essential habitat for aquatic species and, in certain cases, reintroduce or augment wild populations.

(3) We must make greater efforts to conserve species before they require federal protection.

(4) We must continue our efforts to support research and learn more about aquatic faunal groups, like crayfish, that are not very well known.

(5) We must work more effectively to create consensus-based regional conservation and recovery strategies for aquatic species across the Southeast.

(6) We must continue to secure funding and devote staff time to conserving and recovering the jewels of our southeastern waters.

I am very pleased that efforts we have participated in, initiated, or helped fund, with the strong support of so many of our partners, reach practically every major river system in the Southeast. In that spirit, I hope you'll enjoy this issue of the *Endangered Species Bulletin* devoted to the conservation of southeastern aquatic species and their ecosystems.

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1. Biggins, R., N. Burkhead, S. Walsh, V. Mudrak, and K. Bibb. 2000. Strategy for the Conservation and Recovery of Southeastern Imperiled Fishes. 35 pp.

2. Johnson, P. D. 2001. Musseling in on Biodiversity. National Wetlands Newsletter.