# Conserving our Southeastern Aquatic Habitat: THE SOUTHEAST AQUATIC HABITAT PLAN



#### **SARP Mission Statement**

The Southeast Aquatic Resources Partnership (SARP) was initiated in 2001 to address the myriad issues related to the management of aquatic resources in the southeastern United States. These issues include significant threats to the aquatic resources of the Southeast, as illustrated by the fact that 34% of North American fish species and 90% of the native mussel species designated as endangered, threatened, or of special concern are found in the Southeast. Given these stark realities, and the predicted increased pressure on Southeast aquatic resources in the future, SARP was established with the following mission:

WITH PARTNERS, PROTECT, CONSERVE, AND RESTORE AQUATIC RESOURCES INCLUDING HABITATS THROUGHOUT THE SOUTHEAST, FOR THE CONTINUING BENEFIT, USE, AND ENJOYMENT OF THE AMERICAN PEOPLE.

#### SARP Contact:

Scott Robinson, Coordinator Southeast Aquatic Resources Partnership 2123 Hwy. 278 SE Social Circle, GA 30025 Phone 770-918-6418 Email scott\_robinson@dnr.state.ga.us

This report was produced by THE SOUTHEAST WATERSHED FORUM www.southeastwaterforum.org

#### This report was funded by:

THE MULTISTATE CONSERVATION GRANT PROGRAM (Grant GA M-1-P), a program supported with funds from the Wildlife and Sport Fish Restoration Program and jointly managed by the Association of Fish and Wildlife Agencies and the U.S. Fish and Wildlife Service, 2007.



Association of Fish & wildlife Agencies

Cover photos top to bottom, left to right: Frog/USFWS; Shrimp/Jeff Rester; Freshwater mussel/USFWS; Canoe with dog/USFWS; Blue breast darter/USFWS; Fishing at sunset/USFWS



# Conserving our Southeastern Aquatic Habitat: THE SOUTHEAST AQUATIC HABITAT PLAN

## **TABLE OF CONTENTS**

Introduction	2
The Southeast is Unique What is Aquatic Habitat?	3
Threatened Aquatic Habitat	4
Housing Density Changes 1970-2030 Hot Spots for At-Risk Freshwater Fish	5
SARP: Regional Conservation Leadership	6
What is the National Fish Habitat Plan?	7
What is the Southeast Aquatic Habitat Plan State Wildlife Action Plans	? 8
Southeast Aquatic Habitat Plan Objectives	9
Where and How will this Plan be Implemented?	13
What can you do to Protect our Southeastern Aquatic Habitat?	14
Additional Resources	16

Photos top to bottom, left to right; Carson hunting for aquatic bugs, girl splashing in water, hawksbill sea turtle, large-mouth bass.



This publication describes a long-term, regional plan to restore and conserve aquatic habitats in the 14 states that comprise the southeastern U.S.

While most of us will agree that clean water, clean air, and rich, wildlife-filled lakes and streams are essential for our health, recreation and transportation, we often take them for granted. In fact, many are unaware that these resources are diminishing in the Southeast, one of the naturally rich areas of the United States. For years, scientists have reported on a decline in aquatic habitats-the waters that provide life and recreation for us and food, shelter, and space for all of the organisms that live in them. We sometimes forget that water, animals and plants are not limited by man-made or political boundaries. Some animals and plants range over many miles and their health is affected by systems many miles away. Drought in north Georgia can be felt in South Carolina and Florida; flooding in Arkansas will eventually affect Louisiana and Mississippi. Pollution in Tennessee can harm animals, plants, and people in Alabama. Often decline is not noticed until years of damage have been done. In many cases, a cause of the decline is not easily identified, because there are many causes with cumulative effects.

How can we reverse the decline? The simple answer is to restore damaged habitats and create new ones, reduce pollution and conserve water. Actually doing these four tasks is more complicated. However, many individuals, agencies, organizations, and businesses are making great strides. The Southeast Aquatic Resources Partnership is advancing a regional approach of strategic investment in habitat conservation to focus efforts on the highest priority aquatic habitat needs and develop more effective conservation strategies.

This publication describes a long-term, regional plan to restore and conserve aquatic habitats in the 14 states of the southeastern U.S. It is a task requiring cooperative action among every segment of the population from governments to individuals, from anglers and marina operators to home builders and city planners.

The plan emphasizes utilizing science-based data, setting strategic priorities, working at multiple scales from reservoir to watershed, and sharing the load through partnerships. It calls for coordinated effort so that scattered and small results can be expanded and connected into a large and successful conservation effort on some of the greatest natural resources in the country. Community awareness, participation, and monitoring will be needed.

This is a plan for many. We hope, after reading about it, you will adopt it as your own.

SCOTT ROBINSON, *Coordinator* Southeast Aquatic Resources Partnership

# The Southeast is Unique

A red-cheeked salamander crawls over a bit of emerald green moss. A brook trout rises to take a mayfly just below the waterfall of an icy-cold mountain stream. A small boy wades into the creek behind his house, overturning small rocks to hunt for crayfish. A heron stalks a reservoir shoreline at dawn, searching for minnows in the shallows.

These are all common sights in the southeastern United States which harbors an array of aquatic habitats and species unparalleled in the nation. Indeed, the Southeast is among only a handful of locations throughout the entire world with such biodiversity.

This abundance has contributed to making the region a place of both exceptional natural beauty and undisputed scientific importance. Because the presence of these plants and animals enriches our communities, supplies livelihoods for our citizens, and elevates our quality of life, the need to conserve their aquatic habitats has never been greater.

Over 1,800 species of fishes, freshwater mussels, freshwater snails, turtles and crayfish, can be found in southeastern watersheds, many unique to those states or specific watersheds within them. More than 70 major river basins in the region link with the south Atlantic-Gulf of Mexico coastline to nourish and support rivers, streams, lakes, bays, estuaries, reservoirs, and the bulk of the nation's wetlands. Approximately 16 percent of the nation's coastal wetlands are located in the South Atlantic region while nearly 50 percent of the nation's wetlands are in Louisiana, alone.

These incredibly rich resources have nurtured and sustained us through centuries of growth and prosperity. Mountains have sheltered us. Clean waters have quenched our thirst and river-roads have been an important route for commerce.

For centuries, forests, fields, marshes and coastal estuaries have yielded endless bounty. The region has always sheltered and sustained people and wildlife with its natural beauty, abundant water, and pleasant climate. Now many areas are becoming important destinations for tourism, recreation and retirement.

The freshwater and marine systems in the Southeast provide tremendous economic and aesthetic benefits to the whole nation. For example, in 2006, 51% of the anglers in the U.S. fished in the Southeast, accounting for over 46% of the nation's total fishing days. These anglers spent over \$18 billion, accounting for almost 43% of the total recreational fishing expenditures nationwide.<sup>1</sup> Public lands like the region's National Wildlife Refuges, state parks, multiple wildlife management areas and scenic waterways provide opportunities for ecotourism (hiking, canoeing, camping and birding) that also contribute to local economies.

Fisheries in the Southeast contribute nearly one quarter of the economic value of all commercial fish-

eries in the United States. In 2005, despite the impacts of hurricanes on commercial fishing capacity, over 1.75 billion pounds of fish and shellfish were harvested in 14 southern states, with a direct economic value of almost \$900 million. But without adequate habitat, such bounty will decline. In other words, no habitat—no fish.

The biological health of our region's natural resources is inextricably linked with the economic health of our human communities.

#### What is Habitat?

Habitat is the specific area or environment that includes the physical characteristics in which a plant or animal lives, grows and reproduces – a location that provides the living resources necessary for that organism to survive. There are many different types of habitats. In the southeastern United States, habitats can be mountains, forests, wetlands, rivers and streams, lakes and reservoirs, meadows and pastures, and coastal and estuarine marshes. Each of these habitats provides the resources to sustain a unique set of plants, animals, fish and other aquatic species. And each habitat type provides a critical service for humans, as well. Forests help keep our air clean, marshes filter and store rain water; rivers and streams provide drinking water, transportation and recreation, and so on. You may not live next to a wildlife refuge or a national forest, but habitat is all around you and affects you, sometimes from many miles away.

# Threatened Aquatic Habitat

With declines in the quality and quantity of our valuable aquatic resources over the past several centuries has come an increase in the rate of extinctions. Burgeoning populations, land conversion, road development, alteration of river and stream flows, overharvesting and introduction of non-native species are all taking a toll on the natural systems. Today, 34 percent of the fish species and 90 percent of the mussels in peril nationwide are from the Southeast.

In recent years, these pressures have been especially heavy on coastal areas. Human populations along the Gulf Coast increased 45% between 1980 and 2003. Atlantic coastal counties experienced an increase of 58%, the largest increase during that period of any coastal region in the continental United States.<sup>3</sup> The South Atlantic area is projected to grow by 76% by 2030 and the Gulf coast states are projected to grow by 43%.

In 1999, a Florida study found that because of the swift pace of development, each day in the state 450 acres of forest were cut down, 328 acres of farmland were developed, an extra 110,000 gallons of water were consumed and 2 more miles of roadway were built. Although the study only looked at one state, rapidly changing land uses patterns are having similar impacts in every state and in local communities.

In its 1998 report entitled Rivers of Life: Critical

*Watersheds for Protecting Freshwater Biodiversity,* The Nature Conservancy looked at more than 2000 small watersheds across the continental U.S. and identified 87 sub-watersheds with 10 or more "at risk" species of freshwater fish and mussels. Seventy-five of these 87 "hot spots" are contained in 14 southeastern states, and 18 of the top 19 are in four river basins within their boundaries—the Tennessee, Ohio, Cumberland, and Mobile.<sup>4</sup>

So how can we maintain the natural beauty, biological diversity and quality of life that have drawn so many people to the Southeast?

Certainly the land and water use decisions we make in our communities are important elements of conservation, but cooperative action on other fronts is needed, too.

To help guide our decisions and actions, state fish and wildlife departments have worked over the past three years in consultation with local organizations and community leaders from around the 14-state southeastern region to develop strategies to preserve our southeastern habitat. THE SOUTHEAST AQUATIC HABI-TAT PLAN represents a blueprint for the cooperative conservation of southeastern streams, rivers, lakes/ reservoirs, estuaries, and coastal marine habitats to support aquatic resources for sustainable public use.





Photos from top to bottom; oysters, underwater grasses, amberdarter, West Indian manatee with calf.





ď

and National Geogr

ses 2007. Map produced by Natu

Datab.

NatureServe Central

Source:

5

The maps at left, illustrate the impacts of housing development on forests in the eastern U.S. over a 60-year timeline. Housing density is a good reflection of our growing urban footprint and the amount of land it consumes. Growth and development are encroaching on farmland, forests and aquatic resources like rivers, reservoirs and coastal estuaries reducing areas of once prime habitat for diverse aquatic species. The map by NatureServe (above) documents the area of greatest threat-ened and endangered species of freshwater fish.

Housing density in the maps at left, is measured as housing units per square kilometer. Projections of housing units for 2010, 2020 and 2030 assume that past growth rates will continue for the next thirty years. The study derived rates of growth of housing units from 1990 to 2000, then applied those growth rates in each of the following three decades.

# The Southeast Aquatic Resources Partnership: Regional Conservation Leadership



The Southeast Aquatic Resources Partnership (SARP) was formed in 2001 to address the many complex issues related to the management of aquatic resources in the southeastern United States. These issues include significant threats to the aquatic resources of the Southeast. Given the predicted increased pressure on southeastern aquatic resources in the future, SARP decided to coordinate habitat initiatives on a larger scale such as across state boundaries, provide technical assistance and coordinate cooperative efforts in priority areas.

The Southeast Aquatic Resources Partnership (SARP) includes fish and wildlife agencies from 14 states, (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia); the Gulf and Atlantic States Marine Fisheries Commissions; the Gulf of Mexico and South Atlantic Fishery Management Councils; the U.S. Fish and Wildlife Service; and NOAA Fisheries. These entities have signed a Memorandum of Understanding pledging to work together for the conversation and management of aquatic resources in the Southeast. The SARP also includes a number of other Federal agency partners such as U.S. Geologic Survey, Army Corps of Engineers, and The U.S. Environmental Protection Agency. It also includes private industry and non-governmental organizations such as Southern Company, B.A.S.S., Inc, Bass Pro Shops, Triton Boats, The Nature Conservancy, World Wildlife Fund and Southeast Watershed Forum.

SARP seeks strategic partnerships with local communities and nongovernmental organizations to focus on making things happen at the ground level.

Bond Swamp National Wildlife Refuge, Georgia

#### What is the National Fish Habitat Action Plan? Conserving America's Fisheries

The Southeast Aquatic Habitat Plan will guide a region-wide effort to fulfill the goals set forth in a nation-wide fish habitat plan.

The National Fish Habitat Action Plan is an attempt to address the loss and degradation of fish and aquatic habitat nationwide. The plan was born in 2001 when an ad hoc group supported by the Sport Fishing and Boating Partnership Council explored the notion of developing a partnership effort for fish and aquatic species on the scale of what was done for waterfowl in the 1980s. The North American Waterfowl Management Plan has worked wonders during the past two decades to boost waterfowl populations by forming strong local and regional partnerships to protect key habitats.

The need for a nationally focused fisheries conservation effort was validated by fisheries experts. In 2004 the Association of Fish and Wildlife Agencies, which represents all state wildlife agencies, voted to lead the plan. The U.S. Fish and Wildlife Service and NOAA Fisheries are principal Federal partners, but the plan brings together fisheries professionals and a unique blend of industry, government, tribal, academic, and conservation groups with a shared interest in protecting, restoring and enhancing our nation's waterways and fisheries.

This non-regulatory and voluntary plan is locally and regionally based, and driven by grassroots partners. It is focused on fisheries protection, restoration and enhancement in key watersheds, and uses the best scientific expertise on habitat management. The plan recognizes the need for long-term investments in protecting and restoring habitat and focusing local support for aquatic habitat conservation. As one of several Fish Habitat Partnerships accepted by the National Fish Habitat Action Plan, SARP will provide one regional component of the national plan. The national plan will be implemented through the support of Fish Habitat Partnerships like SARP to accomplish the national objectives of protecting all healthy fish habitats by 2015 and improving conditions of priority habitats by 2020. (visit www.fishhabitat.org)

The Southeast Aquatic Resources Partnership envisions a southeastern United States with healthy and diverse aquatic ecosystems that support sustainable public use... The partnership recognizes that aquatic resources are rapidly approaching a crisis point...It recognizes the urgency for action, and is doing its best to make a difference for aquatic resources across our landscape.

### Gary Myers

*Board Member*, National Fish Habitat Action Plan *Executive Director*, Tennessee Wildlife Resources Agency National Fish Habitat Action Plan

# What is the Southeast Aquatic Habitat Plan?

Many citizens, businesses, private organizations and government agencies recognize the value of our region's aquatic resources and work every day to conserve them. However, past efforts to halt habitat decline have been conducted independently on state and local scales. Therefore SARP, a consortium of 23 state fish and wildlife agencies, federal agencies and the nonprofit community and industries, decided to implement regional coordination of habitat conservation. The Plan they developed engages everyone in protecting, maintaining, restoring and enhancing the Southeast's fish and aquatic communities through partnerships that foster habitat conservation and improve the local quality of life.

The need for such a regional plan was emphasized when, in 2005, each state was directed by Congress to submit a wildlife conservation strategy to the U.S. Fish and Wildlife Service for approval. These strategies became known as State Wildlife Action Plans (SWAP). Each plan was to identify the location of species of greatest conservation need and their habitats and include specific actions to conserve those species and habitats before they become lost forever. The common threats and similarities in strategies in these state plans lend support to a regional approach to aquatic habitat conservation.

Fish and wildlife habitat can cross political boundaries, and actions by upstream states can affect habitat in downstream states. SARP developed the SOUTHEAST AQUATIC HABITAT PLAN to maintain, restore, and conserve the quantity and quality of freshwater, estuarine, and marine habitats to support healthy, sustainable fish and aquatic communities, and to sustain public use of water resources for the benefit of citizens in the The success of the Plan rests with the decisions and actions of numerous people, like you, who are willing to help protect your community's character, resources and quality of life by ensuring habitat protection through wiser land use practices today.

southeastern region and the entire nation.

In order to achieve this goal, the Plan will focus projects at many different levels on eight key objectives, essential to protecting aquatic habitat. Projects designed to achieve these goals will be pursued in partnership by many different communities, local and state organizations, landowners, businesses and agencies.

The Southeast Aquatic Habitat Plan is a living document. Its objectives and targets will be updated and refined as necessary in response to national and regional habitat assessments as part of the National Fish Habitat Plan.

#### State Wildlife Action Plans Road Maps for Protecting Priority Habitat

In order to make the best use of federal funds provided through the Wildlife Conservation and Restoration Program and State Wildlife Grants Program, Congress charged each state with developing a statewide wildlife action plan. The State Wildlife Action Plans will focus conversation actions to benefit species of greatest conservation need taking into consideration the relative level of funding available for the conservation of the species. State fish and wildlife agencies have developed these plans with a wide array of local partners, including scientists, sportsmen and conservationists, to outline activities and identify priority areas where terrestrial and aquatic habitat and species need to be protected. Each plan assesses the condition of a state's wildlife habitats, identifies the problems they face and outlines actions that are needed to conserve them over time. By focusing on conserving the natural lands and clean water that provides habitat for fish and wildlife, the plans have important benefits for all of us. Southeast Aquatic Habitat Plan Objectives THERE ARE EIGHT PRIMARY OBJECTIVES THAT HAVE BEEN IDENTIFIED IN THE SOUTHEAST AQUATIC HABITAT PLAN.

### **Objective 1** *Establish, improve and maintain riparian zones*

The land areas along either side of streams, lakes and rivers are referred to as riparian zones. When they contain vegetation such as grasses, woody plants, shrubs, and trees, they help buffer the impacts of land use activities like farming, construction, or mining. Since these buffers help trap sediment (the number one cause of water pollution) carried in run-off, they play an important role in protecting water quality. They also provide vital habitat, travel corridors, and feeding grounds for both aquatic and terrestrial (landbased) wildlife.

The challenge is to maintain, conserve, permanently protect, construct or restore riparian zones in the Southeastern region that can support healthy aquatic habitats.

#### Target

• Ensure that adequate rural/agricultural riparian buffer habitats exist on at least 85% of the lands near rivers and streams in the Southeast.

Spartina grass in salt marsh.



### **Objective 2** *Improve or maintain water quality*

The water we use impacts and supports many human activities—from public water supplies to recreation to transportation to agriculture and industrial use. It's also a critical factor in sustaining healthy populations of plant and animal life. Water has certain physical, chemical, and biological characteristics that can be altered— sometimes, by natural events such as storms or seasonal changes, and other times by our own actions. Everything from industrial discharges to residential development runoff can play a role in changing water quality, and sometimes these land use activities can take place many miles from the water body they impact.

Aquatic plants and animals thrive in habitats with clean water and a healthy balance of temperature, nutrients, and organic material. Maintaining good water quality and avoiding alterations in these life-sustaining balances is important for the animals and plants, and provides healthy water supplies for human use.

The challenge is to maintain or improve the balance of water quality characteristics in aquatic systems to meet the needs of fish, other aquatic and terrestrial organisms, as well as human populations.

#### Target

• Restore water quality in aquatic areas in the South east to non-impaired status as recorded in the state EPA303(d) list.

### **Objective 3** Improve or maintain watershed connectivity

Watershed connectivity refers to the natural links between water bodies and the movements of aquatic creatures from one habitat to another. Fishes need to go upstream to spawn. People need water for life, industry, and transportation. When we work to improve watershed connectivity, we're helping to ensure that the physical, chemical, and biological conditions are in place to facilitate this process. Water bodies and watersheds themselves need connectivity to support their ecological systems. Barriers to connectivity include physical impediments such as dams, levees, or armored shorelines as well as things that can block or change movements like thermal barriers, invasive species, or loss of tree cover. Effective barrier removal can be physical removal, breaching of a barrier, installations of fish passage structures or implementation of any strategy to promote connectivity around or through a barrier.

The challenge is to improve or maintain watershed connectivity in a manner that will support healthy habitats, ecological systems, and populations of fish and other aquatic organisms and also meet public needs within a watershed and the region.

#### Target

• Restore fish access to southeastern waters by effectively removing barriers to fish passage.

# Southeast Aquatic Habitat Plan Objectives

#### **Objective 4**

### Improve or maintain appropriate hydrologic conditions for the support of biota in aquatic systems

The quantity and flow of freshwater varies naturally, by season, and by precipitation-related conditions such as flooding or drought. It can also be altered by human activities; examples would be withdrawals of water from rivers and reservoirs, as well as withdrawals from underground aquifers. Occasional withdrawals from both sources can be important to some aquatic communities. Seasonally high flows in rivers, reservoirs, and natural lakes greatly enhance the chances that fish will spawn successfully and that their offspring will survive to adulthood. These same water levels support public needs for transportation, irrigation, drinking water, and recreation.

Estuaries are coastal areas where fresh water flows into and mixes with salt water that, in turn, ebbs and flows with the ocean tides. These highly-productive habitats are supported by the volume and regularity of these flows, which can be changed when rivers are dredged.

The challenge is to maintain and/or adjust the quantity and flow of freshwater in rivers, streams, reservoirs and estuaries in a manner that will enhance or sustain the habitats and populations of fish and other aquatic organisms while meeting public needs.

#### Target

• Reduce the percentage of rivers in the Southeast that have experienced changes in high or low flows.

### **Objective 5** *Establish, improve or maintain appropriate sediment flows*

Sediment suspended in flowing water can be carried all the way from inland waterbodies to coastal waters. Some of it can also be deposited along the banks and in the channels of streams and rivers. While some sedimentation can positively affect the size and health of wetlands, rivers, streams, lakes, reservoirs, and coastal areas (building or renewing wetlands, banks, and river or lake bottoms), excess sedimentation raises the costs to treat water, maintain navigation channels, and damages fisheries and aquatic habitat.

The challenge is to maintain or improve the balance of sediment flow within aquatic systems in a manner that sustains water resources and maintains or improves the health of the habitats and their populations of fish and other aquatic organisms. This will also be critical to ensuring sufficient sediment supply to nurture adjacent wetlands and coastal marshes, and offset subsidence and sea level rise while sustaining water resources for human use.

#### Targets

- Reduce the number of stream miles impaired by excess sediment.
- Rehabilitate estuarine habitat where alterations have decreased sediment flows, resulting in aquatic habitat loss.

### **Objective 6** Maintain and restore physical habitat in freshwater systems

Physical habitats are the structural elements that make waterbodies suitable for aquatic species. An example of physical habitat in southeastern waters would include the graveled or rocky bottoms of streams, rivers, or lakes.

Physical habitat provides shelter, spawning sites, nursery areas, and feeding grounds for fish and other aquatic animals. When physical habitat is changed (whether naturally, by storm/flood events or aging/decomposition, or by human activities, such as draining wetlands or creating artificial channels for streams or rivers), the animals and plants are affected. Not all changes are bad, but large-scale losses of critical habitats such as coastal marshes and seagrass beds have major implications for the fish and people who depend upon them.

The challenge is to prevent the destruction of physical habitat and promote restoration and improvement in a manner that meets both ecological and human needs.

#### Targets

- Reduce the number of acres of altered freshwater wetlands drained or converted through development annually in the Southeast.
- Decrease miles of streams destroyed or converted into unnatural drainage systems annually in the Southeast.
- Increase the number of lakes and reservoirs with adequate physical habitat structure.
- Increase the number of miles of streams with improved instream physical habitat.

#### **Objective 7**

Restore or improve the ecological balance in habitats negatively affected by non-indigenous invasive or problem species

When non-native species are introduced into a biological community, habitats can be altered and degraded. These changes can affect water quality, nutrient levels, sediment flow, and species composition; they can also have human impacts to areas such as recreation and economics. Many invasive species lacking natural predators out-compete native species for food, tolerate a broad range of conditions, and disrupt interdependent biological systems.

Problem species can be introduced naturally, through events such as storms or floods. They can also be spread through human activities like shipping, aquaculture, fishing/boating, agriculture/horticulture, exotic pet/aquarium trade, and stocking.

The challenge is to restore healthy ecological systems of native habitats by controlling, eradicating and preventing the spread of aquatic invasive species.

#### Target:

• Reduce the rate of increase in invasive species settling in the Southeast.

### **Objective 8** *Conserve, restore, and create coastal estuarine and marine habitats*<sup>5</sup>

Coastal habitats in the Southeast are critical to the region's biological productivity. Salt marshes, oyster reefs, seagrass beds, estuarine wetlands, mangroves, coral reefs, and intertidal flats provide food, cover, shelter, spawning, and nursery areas for fish and aquatic species. The sustainability of estuaries and marine habitats also has broad economic and sociological implications for the coastal communities that depend upon them.

These special places have suffered significant losses and degradation in recent years. Resource management actions (including the measures outlined in Objectives 1-7) will have both direct and indirect positive impacts on the overall health of coastal habitats. In a very real way, decisions made upstream profoundly affect ecosystem and community health along the coast.

The challenge is to stop and reverse the loss and degradation of coastal and marine fish habitats in order to maintain recreationally and commercially important fish populations and healthy coastal habitats to meet the needs of the U.S. population.

#### Targets

- Reduce the percentage of Southeast coast and Gulf coast estuarine areas rated as being in poor condition with respect to water quality.
- Reduce the percentage of Southeast Coast and Gulf Coast estuarine areas rated as being in poor condition with respect to contaminants in fish and oyster beds.
- Prevent coastal erosion along coastlines classified as "severely eroding."

Great Blue Heron









### FOOTNOTES

- <sup>1.</sup> USFWS/USCB, National Survey of Fishing, Hunting and Wildlife Associated Recreation 2006.
- <sup>2.</sup> NMFS, Fisheries of the United States 2005.
- <sup>3.</sup> U.S. Census 2000, Population in Coastal Counties.
- <sup>4.</sup> Master et al. 1998.
- <sup>5.</sup> Preliminary coastal habitat targets have been established based on existing limited regional assessment data from the EPA's National Coastal Condition Report, NOAA's Status and Trends Program, the USFWS National Wetlands Inventory, and USGS coastal erosion rates. Targets will be revised in light of future habitat condition assessments and will include targets for other coastal habitat types such as seagrasses and coral reefs.



Photos clockwise from upper right; Okefenokee National Wildlife Refuge, Georgia; alligator, shortnose sturgeon.

# Where and How will this Plan be Implemented?

While the Southeast Aquatic Habitat Plan aims to conserve, protect and restore freshwater, estuarine and marine habitat in the Southeast, the Plan cannot succeed without the help and support of local citizens, community officials, land use planners and outdoor recreational enthusiasts. (See pages 14-15 for what you can do)

And no single agency or organization can accomplish this task alone. Conservation strategies must occur on multiple levels with new public-private partnerships. Local citizen support is needed, along with better community planning to protect and preserve important habitat. SARP will help initiate and coordinate multiple agency partnerships, especially where critical habitat crosses state boundaries.

Attention will be focused on those areas identified by regional experts as having having imperiled, threatened and endangered species. In addition, areas which serve recreational fisheries will receive priority attention, along with important estuarine and coastal habitats.

Such an effort will require continued data collection and a strong public education component. Creating new partnerships among local communities and state and federal agencies will allow greater protection and restoration while helping to leverage limited dollars. Land use practices need to be updated to provide communities with the tools they need to shape growth and development in areas that have the least impact to vital natural resources. Cooperative agreements will be needed to align state and federal agency restoration efforts. Through working together we can make a difference by ensuring a future that maintains the biodiversity and wealth of natural resources which define our community character, provide our quality of life, and attract people to our special region.





Photo left: Fish and Wildlife Service employees seining for invertebrates. Photo above: Sawgrass planting, Bennett Bayou tidal marsh, Mississippi



# What can you do to Protect our

## **IF YOU ARE A LOCAL COMMUNITY:**

- Integrate habitat protection measures in local comprehensive plans.
- Protect and restore wetlands and floodplain areas.
- Work with land trusts, landowners and your state wildlife agency to fund habitat acquisition and protection project.
- Develop a conservation plan to protect your community's "green infrastructure."
- Minimize stormwater runoff and sedimentation into streams.
- Strictly enforce ordinances for erosion control and runoff for construction sites. Work with developers to support construction best practices.
- Maintain vegetated buffers along all waterways.
- Maintain and restore water quality in lakes, reservoirs, streams and estuaries.
- Maintain community forests. They save communities millions of dollars in stormwater treatment costs, air pollution and energy costs.
- Assess ways to increase habitat connectivity by connecting parks, greenways and open space corridors.
- Promote public access and clean marina programs to enhance water recreation.
- Promote prevention and removal of non-native invasive aquatic species.
- Consider submitting aquatic habitat conservation projects for state and federal grant funding.

# Southeastern Aquatic Habitat?

# IF YOU ARE AN INDIVIDUAL CITIZEN:

- Support protection of wetlands and floodplains by participating in your county comprehensive planning process and monitoring variances issued by your city or county government.
- Maintain vegetated buffers along all waterways on your property and encourage them on community property.
- Participate in local organizations like The Nature Conservancy, B.A.S.S. Inc., Ducks Unlimited or river and watershed groups.
- **Reduce stormwater runoff by maintaining tree cover and forests.**
- Create backyard wildlife habitat.
- Reduce your environmental footprint by conserving water, saving trees, reducing paved surfaces, keeping trash and yard debris out of gutters and drains.
- Avoid release and spread of non-native species by not emptying aquariums or bait buckets into waterways and rinsing boat hulls and motors when moving between waterbodies.
- Volunteer to work with aquatic habitat restoration projects.
- If you have endangered species on your property, participate in the U.S. Fish and Wildlife Service "Safe Harbor Program."
- Join Teaming with Wildlife, a coalition of more than 5000 groups working together to prevent wildlife from becoming endangered.
- Take a child fishing and teach them about the importance of aquatic habitat.
- Work with local land trusts and state agencies to support funding for habitat protection and land acquisition. Explore the use of conservation ballot measures to help your community fund protection of valuable land and water resources.
- Purchase a state fishing license. Fishing license sales directly support fish habitat conservation efforts by state wildlife agencies.





# Additional Resources

ALABAMA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES: www.outdooralabama.com/research-mgmt/

ARKANSAS GAME AND FISH COMMISSION: www.agfc.com/wildlife-conservation/default.aspx

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION: www.research.myfwc.com/

GEORGIA DEPARTMENT OF NATURAL RESOURCES: www.gadnr.org/naturalresources.aspx

KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES: www.kdfwr.state.ky.us/Navigation.asp?cid=100 www.kdfwr.state.ky.us/Navigation.asp?cid=552&NavPath=C101

LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES: www.wlf.state.la.us/education/research/habitats/ www.wlf.state.la.us/experience/

MISSISSIPPI DEPARTMENT OF MARINE RESOURCES: www.dmr.state.ms.us/ims/ims\_disclaimer.htm

MISSISSIPPI DEPARTMENT OF WILDLIFE, FISHERIES AND PARKS: www.home.mdwfp.com/more.aspx

MISSOURI DEPARTMENT OF CONSERVATION: www.mdc.mo.gov/nathis/

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES: www.enr.state.nc.us/html/data.html

NORTH CAROLINA WILDLIFE RESOURCES COMMISSION: ww.ncwildlife.org/fs\_index\_07\_conservation.htm

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION: www.wildlifedepartment.com/watchabl.htm

SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES: www.dnr.sc.gov/conservation.html

TENNESSEE WILDLIFE RESOURCES AGENCY: www.state.tn.us/twra/habitatmgmt.html www.state.tn.us/twra/habitatconserv.html www.state.tn.us/twra/fish/Reservoir/habitat/habitat.html

TEXAS PARKS AND WILDLIFE DEPARTMENT: www.tpwd.state.tx.us/fishboat/ www.tpwd.state.tx.us/landwater/ VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES: www.dgif.state.va.us/habitat/

#### Regional and National Websites with information on Aquatic Habitat Conservation

Complete text of the Southeast Aquatic Habitat Plan is available on the Southeast Aquatic Resources Partnership website: www.sarpaquatic.org/

NATIONAL FISH HABITAT ACTION PLAN: www.fishhabitat.org/

NATIONAL INSTREAM FLOW COUNCIL: www.instreamflowcouncil.org/

THE H. JOHN HEINZ III CENTER FOR SCIENCE, ECONOMICS AND THE ENVIRONMENT: www.heinzctr.org/ecosystems/index.shtml

U.S. ENVIRONMENTAL PROTECTION AGENCY: www.epa.gov/owow/oceans/nccr/downloads/html

U.S. Fish and Wildlife Service: www.fws.gov/habitat/

South Atlantic Fishery Management Council: www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/ Default.aspx www.safmc.net/EcosystemLibrary/tabid/225/Default.aspx

NATIONAL MARINE FISHERIES SERVICE: www.nmfs.noaa.gov/habitat/

GULF STATES MARINE FISHERIES COMMISSION AND GULF OF MEX-ICO FISHERY MANAGEMENT COUNCIL JOINT HABITAT PROGRAM www.gsmfc.org/, then enter "habitat conservation" in the search tool.

ATLANTIC STATES MARINE FISHERIES COMMISSION: www.asmfc.org/

STATE WILDLIFE ACTION PLANS www.wildlifeactionplans.org

Links to additional Aquatic Habitat Conservation Information on SARP Member-states' Websites





Conserving and restoring our Southeast aquatic resources requires that we all—federal, state, industry, private organizations, and individual members of the general public—become involved...It is only through partnerships that we will make a difference.

> SAM HAMILTON Southeast Regional Director U.S. Fish and Wildlife Service

