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MANAGING INVASIVE SPECIES THROUGH PARTNERSHIP FOR HEALTHY COASTAL ECOSYSTEMS

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INTRODUCTION

Protecting, conserving, and restoring the ecosystems and habitats in the southeastern U.S. for the continuing benefit, use and enjoyment of all Americans is the goal of 21 state and federal agencies and other organizations joined together by memorandum of understanding as SARP – the Southeast Aquatic Resources Partnership. After years of striving to achieve this goal individually, the partners have pooled expertise and resources to work together within the region in six areas: 1) public use, 2) fishery mitigation, 3) imperiled fish and aquatic fish species recovery, 4) interjurisdictional fisheries, 5) aquatic habitat conservation, and 6) aquatic nuisance species. In area 6, SARP's first project involves helping each of its 13 member states (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas) develop and implement state aquatic invasive species (AIS) management plans. The partnership facilitates plan development shaped by awareness of common natural communities, watersheds and issues, and the possibilities of regional cooperation to achieve state AIS management objectives.

BACKGROUND

The southeast region of the United States is one of the most species-rich areas in the temperate zone because of diverse environments and some evolutionary isolation (Mac, Opter, Puckett Haecker and Doran, 1998, p. 255). From Virginia to Texas, the Ohio River to the Gulf of Mexico, it is dominated by aquatic ecosystems that are part of 47 percent of the nation's wetlands and 78 percent of its coastal marshes (Keeland, Allen and Burkett, 1995, pp. 216-218). The region's 70 major river basins and 26,000 miles of shoreline provide habitat for 65 percent of the nation's freshwater fish species (Mac, Opter, Puckett Haecker, and Doran, 1998, p. 296). Most of these ecosystems are not restricted to state boundaries, yet their care is the major responsibility of one or more state political entities.

More aquatic nonindigenous species have succeeded in this region than any other, possibly because of the temperate and subtropical climate, abundant surface water, and more than a thousand miles of coastline dotted with four of the top 10 international shipping ports in the country (Benson, Fuller, and Jacono, 2001 p. 5). Roughly half of all non-native fish species introduced into the southeast became established (Benson, Fuller, and Jacono, 2001, p. 7). The result is not always negative, but it always involves change in some way – in the ecosystem, the biodiversity of the area, and/or the economy.

Under normal circumstances, maintaining water, nutrient, and energy cycles is a challenge to all ecological managers. They balance decisions to meet diverse ecological and economic goals, and often use biodiversity as an ecosystem health indicator. AIS intensify the challenge because they are seldom identified before they cause change, and they can be introduced deliberately and accidentally at any time.

For these reasons, an invasive species is seldom fully eradicated. More often, management is limited to control or containment, and the native ecosystem is allowed to change -- a costly alternative for the habitat, plant and animal communities, and the people who depend upon them. Coastlines have been changed by erosion-causing invasive animals such as nutria (*Myocastor coypu)* (Louisiana Department of Wildlife and Fisheries, 2003). Coastal estuaries in other regions have been weakened when an invading marsh grass such as *Spartina alternaflora* changes the sediment accretion rate and alters ebb and flow necessary to a particular ecosystem (Lance, L., 1995, observed 2/9/05; Little, C. 2000, pp. 18-21) or, when a plant like purple loosestrife (*Lythrum salicaria*) out-competes native plants that provide good nutrition for birds and other wildlife (Ontario Federation of Anglers and Hunters, 1996).

Without regional management, the destruction to the southeastern coastline by other species is likely. AIS succeed in areas that have a similar-to-origin climate, are recently disturbed, have low natural diversity, a relatively simple food web, are anthropogenically disturbed, and that have no likely predators or species with a similar morphology (Williams and Meffe 1999, pp. 6-7). Coastal areas and estuaries are naturally disturbed, low-diversity systems made more vulnerable in this century by anthropogenic activities such as shipping, industrial development, and urbanization (Ray 2005, p. 6). Some of the most vulnerable of these are in Louisiana and Florida, and several of the nation's largest international shipping ports dot the Gulf of Mexico and South Atlantic coastlines. Invasive species management, focusing first on prevention, is essential in this region.

METHODS

Timing and communication are the keys to achieving a management plan in each southeastern state. SARP secured a grant to fund a full-time coordinator for the group, and each member state appointed an individual to lead the state effort during 2004-2007. These individuals opened communication with one another by telephone and e-mail, and are using SARP membership, as well as participation in the Gulf and South Atlantic Regional ANS Panel and the Mississippi River Basin Panel on ANS to achieve the project goal. Open communication encourages similarities in management plan format, cooperation between neighboring states, and improved effectiveness of control and prevention measures.

Most of the states are forming stakeholder work groups to collaborate on the plan's content, and most are following online guidelines provided by the National Aquatic Nuisance Species Task Force. Completion and acceptance of a plan by the national task force opens the door for each state to apply for federal assistance in implementing the management plan.

Through a variety of mechanisms, the work groups are identifying native and problem species, new infestations, and possible invasion pathways within their state boundaries. They are sharing information with their counterparts who share responsibilities for common watersheds, wildlife, fish and/or plant species. Work will continue far beyond 2007. A management plan identifies the situation and lists needs for prevention and control. It sets priorities and encourages or provides mechanisms to overcome overlapping or conflicting jurisdictions. Implementation is ongoing.

RESULTS

This project's goal is completion of as many (if not all 13) management plans by the end of 2007. This paper will report on progress to date towards that goal and on selected AIS prevention and control successes and challenges resulting from the partnership. Examples of overlapping jurisdictions for species and pathways will also be reported.

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Web sites associated with this project
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Gulf and South Atlantic Regional ANS Panel - *http://nis.gsmfc.org/gomrp_on_ais.shtm*
Mississippi River Basin Panel on ANS -
http://wwwaux.cerc.cr.usgs.gov/MICRA/MRB%20Panel%20on%20ANS.htm

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