

Isolated Wetlands in the Southeastern United States: A Comparison of State Regulatory Programs and Implications of Recent Research

The authors discuss state regulatory actions in response to federal court decisions affecting isolated wetlands. In addition, they present recent research findings on the extent, location, size, and quality of isolated wetlands identified through the Southeast Isolated Wetland Assessment Project.

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The term “isolated wetlands” has evolved over the past several decades, but it has become synonymous with the phrase “geographically isolated wetlands,” meaning that no surface connection to downstream waters exists, as first described by Ralph Tiner (2003).¹ This surface connection can be any stream, ditch, or a wetland with a continuous surface connection to downstream waters. In addition, the U.S. Army Corps of Engineers (the Corps) defines isolated wetlands as being geographically isolated and “lacking links to interstate commerce sufficient to serve as a basis for jurisdiction.”² Therefore, most wetlands that the Corps has determined to be isolated for whether §404 permits would be required under the Clean Water Act (CWA) tend to be depressions surrounded by uplands that have not been ditched.

Since the 2001 *Solid Waste Authority of Northern Cook County (SWANCC)* decision of the U.S. Supreme Court,³ regulation of isolated wetlands has been an issue for state, rather than federal, governments. Over the past decade, states in the Southeast (Florida, Georgia, North Carolina, South Carolina, and Virginia) have handled the challenge of regulating these important wetlands differently. This article summarizes the regulatory actions of these states in response to federal court cases and presents information on the extent, location, size, and quality of isolated wetlands in the Southeast to assist states that are developing regulatory programs for isolated wetlands or working to maintain current programs.

FEDERAL COURT CASES IN THE SOUTHEAST

There were several judicial actions in the Southeast concerning wetlands before the Supreme Court decision in 2001. In the 1997 *United States v. James J. Wilson* case, the U.S. Court of Appeals for

the Fourth Circuit of Appeals⁴ ruled that for states in the Fourth Circuit, e.g., Maryland, North Carolina, South Carolina, Virginia, and West Virginia, the Corps could not require §404 permits for impacts to isolated wetlands based solely on the *potential* (rather than actual) effects on commerce. In 1997, the Fourth Circuit overturned the Tulloch rule,⁵ which had required a §404 permit from the Corps for any incidental fill of wetlands resulting from activities, such as ditching, in wetlands. Finally, in 2000, the Fourth Circuit⁶ decided that sidecasting of dredged material from ditching wetlands was fill and required a §404 permit.

SUPREME COURT

The Supreme Court has had two recent wetland rulings. The 2001 *SWANCC* case concerned a proposed landfill that applied to fill isolated borrow pits in Illinois. The Court ruled that the Corps could not use the Migratory Bird Rule, which the Corps developed in 1986 as a link to the Commerce Clause of the U.S. Constitution⁷ to exert authority over isolated waters and wetlands under the CWA. Thus, impacts to these isolated wetlands were not subject to CWA provisions.

In 2006, the Court heard the consolidated cases of *Rapanos v. United States* and *Carabell v. U.S. Army Corps of Engineers* (hereafter *Rapanos*).⁸ In *Rapanos*, the Court ruled that an impact to either a perennial water or a “significant nexus” to downstream waters was needed for a §404 permit. In the context of isolated wetlands, the *Rapanos* decision did not change the permitting landscape, since the *SWANCC* ruling already excluded isolated wetlands from federal regulation. Thus, from the standpoint of whether a wetland is isolated, *Rapanos* provided additional details on making a jurisdictional determination under the CWA.

SOUTHEASTERN STATES' ACTIONS CONCERNING ISOLATED WETLANDS

Virginia

The Virginia Department of Environmental Quality program predates the *SWANCC* decision and its rules were written in response to *Wilson*.⁹ Virginia's law is broader than the CWA, since it regulates landclearing, dredging, filling, excavation, draining, ditching, and water withdrawal in wetlands, while the federal §404 permit program only regulates the disposal of dredge and fill material. In general, Virginia regulates isolated wetlands much like non-isolated wetlands. However, "isolated wetlands of minimal ecological value" are defined¹⁰ as being isolated wetlands less than one-tenth of an acre in size, not in a Federal Emergency Management Act floodplain, not identified by the Virginia Natural Heritage Program as a rare community, and not having state or federal threatened or endangered species. These wetlands may be filled (up to one-tenth of an acre) without permit application or regulatory review.

North Carolina

The North Carolina Environmental Management Commission (NC EMC) adopted wetland water quality standards and §401 Water Quality Certification rules in 1996.¹¹ Following *SWANCC*, the NC EMC adopted rules for a permitting program for isolated wetlands¹² to ensure consistency with the standards applied to all wetlands regulated in 1996. Additionally, since fill is a regulated activity under the North Carolina water pollution control laws, the state had the authority to adopt a regulatory program to cover isolated wetlands under the 1996 rules.¹³ The net result was the adoption of a set of wetland rules that govern impacts to all wetlands in North Carolina from both filling and draining using existing statutory authority. Similar to Virginia's rule, the North Carolina isolated wetland rules allow impacts without review to one-tenth of an acre of isolated wetlands west of Interstate-95 (a rough approximation of the boundary between the Coastal Plain and Piedmont) and one-third of an acre east of Interstate-95.

During the same time period, the NC EMC's authority to adopt any wetland rules was challenged in state court on the grounds that the word "wetlands" does not appear in the state statute. On October 22, 2001, the Wake County Superior Court ruled that the state did have authority to adopt these rules.¹⁴ On December 31, 2002, the State Court of Appeals agreed unanimously, ruling in part that "the definition of water provided in N.C.G.S. §143-212(6), is sufficiently broad to include the classification of wetlands. The absence of the term wetlands in the definition does not deprive the EMC of statutory authority to classify waters and to adopt standards for wetlands."¹⁵ The state Supreme Court declined to hear the case, which confirmed that the NC EMC has the authority to regulate wetland impacts, including those to isolated wetlands.

South Carolina

In response to *SWANCC*, the South Carolina Department of Health and Environmental Control (SC DHEC) developed rules for a permitting program for isolated wetlands. After several years of stakeholder involvement, the SC DHEC board approved rules in January

2004. In South Carolina, the General Assembly must approve all rules, which it did not do, meaning the rules were never implemented.¹⁶ Therefore, South Carolina does not have a statewide regulatory program that covers isolated wetlands.

However, two recent state Supreme Court cases have concluded that the state has the legal authority and responsibility to regulate isolated wetlands. In *Spectre, LLC v. South Carolina Department of Health and Environmental Control*,¹⁷ the S.C. Supreme Court ruled that a development company was appropriately denied a permit to fill isolated wetlands under the Coastal Zone Management Act (CZMA). This decision confirmed that isolated wetlands must be included in the review process for CZMA permit actions in South Carolina counties covered by that federal law. In *Georgetown County League of Women Voters v. Smith Land Company, Inc.*,¹⁸ the developer wished to fill isolated wetlands in order to develop the property. The S.C. Supreme Court concluded that a permit would be required from the SC DHEC for discharges to waters of the state, including isolated wetlands. However, the SC DHEC does not currently have regulations for fill of isolated wetlands and is trying to decide how to proceed in the face of reduced state budgets.¹⁹

Georgia

In Georgia, there has been no legislative or regulatory effort to address the *SWANCC* or *Rapanos* decisions. Isolated wetlands are generally not considered jurisdictional at the state level if wholly contained upon the property of a single individual, partnership, or corporation. Several environmental groups have expressed concern with the situation, but to date, no action (legislative or judicial) is underway.²⁰

Florida

Florida's comprehensive Environmental Resource Permit (ERP) program began in 1995 and requires permits for most impacts to isolated and non-isolated wetlands under state law. This program is independent of the permitting requirements and jurisdictional limitations under §404 of the CWA.²¹ The Florida Department of Environmental Protection and five water management districts jointly administer the ERP program. However, when the state implemented this program, it excluded Florida's Panhandle²² from regulating dredging and filling in isolated wetlands until November 1, 2010. While *SWANCC* had little to no effect on the state's wetland permitting program throughout most of the state, it did reduce protections afforded to isolated wetlands in the Panhandle from 2001 to 2010.²³

DISTRIBUTION AND EXTENT OF ISOLATED WETLANDS IN THE SOUTHEAST

In their comprehensive summary in *Wetlands* in 2003, Scott Leibowitz and Tracie-Lynn Nadeau²⁴ stated that determining the effect of *SWANCC* on the nation's wetlands required knowing the extent of isolated wetlands. Table 1 summarizes scientifically based estimates of the extent of isolated wetlands in the Southeast. In general, estimates made immediately after *SWANCC* are higher than current estimates. This outcome reflects the facts that: (1) the federal regulatory agencies have only recently de-

Table 1: Summary of the approximate extent of isolated wetlands in the southeastern United States.

State–locale	Type of data	Date of analysis	Percent of wetlands that are isolated
Virginia–Earlsville ³⁴	GIS with NHD ^A maps	2003	14.4-16.5
North Carolina–Dublin ³⁵	GIS with NHD maps	2003	20.7-24.2
North Carolina/South Carolina–Charlotte ³⁶	GIS with NHD maps	2003	17.1-21.2
South Carolina–Horry County ³⁷	GIS with NHD maps	2003	5.1-9.1
Georgia–Acworth ³⁸	GIS with NHD maps	2003	25.6-29.2
Florida–Dade City ³⁹	GIS with NHD maps	2003	41.0-42.1
Florida–Crystal City ⁴⁰	GIS with NHD maps	2003	44.6-44.9
Virginia–statewide ⁴¹	GIS with NHD maps	2003	8.0
Florida–Panhandle ⁴²	GIS with NHD maps	2003	34.3
Georgia–Dougherty Plain ⁴³	GIS with NHD, SSURGO, ^B and DRG ^C maps	2010	3.6
Virginia ⁴⁴ –statewide	GIS with NHD maps	2010	1.3
North Carolina ⁴⁵ –statewide	GIS with NHD maps	2010	3.2
South Carolina ⁴⁶ –statewide	GIS with NHD maps	2010	6.2
Georgia ⁴⁷ –statewide	GIS with NHD maps	2010	7.1
Florida ⁴⁸ –statewide	GIS with NHD maps	2010	6.6
North Carolina/South Carolina–eight-county study area ⁴⁹	GIS with NHD maps and field checking	2011	2.0

A. National Hydrography Database.
B. Soil Survey Geographic Database.
C. Digital Raster Graphic model.

defined the term “isolated wetlands”; and (2) the level of incompleteness for stream layers depicted on available geographical information systems (GIS) has only recently been documented.²⁵ The best estimates appear to be those that use a GIS component, followed by field investigations based on data collected from the North Carolina/South Carolina study discussed below, and as concluded by David McCauley & Lisa Jenkins in Illinois.²⁶ Therefore, in general, we believe that the most accurate estimates are that isolated wetlands in the Southeast generally make up less than or equal to 5% of the total wetland acreage, but there are some locations (such as karst topography in Georgia and Florida) where percentages are higher. However, the exact extent of isolated wetlands is difficult to determine, since most of these wetlands are small and widely scattered across the Southeast.

In North Carolina and Virginia, which regulate impacts to isolated wetlands, we queried their respective permitting databases to determine the distribution of isolated wetlands by major physiographic region, i.e., Mountains, Piedmont, and Coastal Plain.²⁷ In these states, most of the isolated wetland permits (78.1% in Virginia and 47.9% in North Carolina) were issued in the Coastal Plain, with a significant number in the Piedmont (17.4% in Virginia and 50.9% in North Carolina), and much fewer (4.5% in Virginia and 1.2% in North Carolina) in the

Mountains. Overall in Virginia, between October 1, 2001, and December 31, 2011, 8.6% of the permitting actions were for isolated wetlands, while in North Carolina between October 22, 2001, and December 31, 2011, 4.4% of the permitting actions were for impacts to isolated wetlands. In Virginia, only data from general permits were analyzed, whereas in North Carolina, both general and individual permits were counted. These results support the lower estimates in Table 1.

THE SOUTHEAST ISOLATED WETLAND ASSESSMENT PROJECT

The Southeast Isolated Wetland Assessment (SEIWA) project explored the extent and condition of isolated wetlands in an eight-county portion of the Coastal Plain of North and South Carolina under a U.S. Environmental Protection Agency (EPA) grant.²⁸ The SEIWA project employed an approach based on three levels of wetland assessment described by EPA.²⁹ The SEIWA Level 1 GIS approach produced polygons based on GIS analysis that represent possible locations of isolated wetlands. Level 2 field assessments were then conducted on 170 randomly selected sites identified in the Level 1 analysis to determine the accuracy of the predictions, as well as to develop a statistically valid estimate of the characteristics of these wetlands. In terms of accuracy, 69% of the polygons visited were wetlands and 31% were non-

wetlands (uplands or ponds). Of the total polygons predicted to be isolated, 22% were actually isolated wetlands. These results confirm the necessity for field evaluations to determine whether GIS-identified, potentially isolated wetlands are indeed isolated, mainly because small ditches that connect these wetlands to downstream waters are not depicted on any current GIS layer. The GIS data, as corrected by the results from the Level 2 rapid assessments, were used to estimate the number, size, and condition of isolated wetlands in the entire study area.

“[P]reliminary monitoring results suggest the connected nature of these isolated wetlands through shallow groundwater aquifers. Additional monitoring and simulation modeling are being pursued through a follow-up EPA grant.”

In general, isolated wetlands in the SEIWA project study area were relatively small, with a mean size of 0.68 acres (median of 0.41 acres). Although isolated wetlands are generally small, the SEIWA project estimated that there are more than 50,000 isolated wetlands occupying approximately 30,000 acres, or about 2% of the total wetland area in the study area. Based on these data, impacts to about 46% of the isolated wetlands in our study area in North Carolina would not require permits, since they are less than one-third of an acre in size. These mostly forested depressions are estimated to hold over 4,000 acre-feet of water in North Carolina, and sequester around five million metric tons of carbon in the soil. Based on the NC Wetland Assessment Method,³⁰ 3.6% of the wetlands were rated low-quality, 30% were rated medium-quality, and 67% were rated high-quality. For the Ohio Rapid Assessment Method,³¹ these same wetlands were scored with 14% in the lowest third of the ratings, 81% in the middle tier, and 4.4% were in the highest tier. Therefore, it appears that at least 90% of the isolated wetlands in the study area are in good to excellent condition.

Finally, detailed Level 3 assessments were conducted on two clusters of isolated, reference-quality wetlands in Brunswick (North Carolina) and Marion (South Carolina) Counties to evaluate their hydrology, water quality, and habitat functions. Transects of groundwater monitoring wells were installed within and between wetlands and the nearest non-isolated water body to quantify their interconnectivity. In summary, these wetlands appear to have perched water tables on top of clay or sandy clay lenses that respond quickly to significant local precipitation events. At the North Carolina site, there appears to be the potential for connectivity and groundwater movement between the isolated wetlands and the adjacent connected wetland. In contrast, at the South Carolina site, any groundwater movement

from the isolated wetlands to downstream waters appears to occur only during infrequent hydrologic conditions. Therefore, preliminary monitoring results suggest the connected nature of these isolated wetlands through shallow groundwater aquifers. Additional monitoring and simulation modeling are being pursued through a follow-up EPA grant.

CONCLUSIONS

The future of isolated wetlands in the southeastern United States will vary from state to state depending on the level of regulatory protection, as well as the relative strength of each state program. In states such as Florida, North Carolina, and Virginia, where rules and statutes exist along with robust permitting, compliance, and enforcement programs, it is likely that isolated wetlands will receive a considerable level of protection as long as state funding is provided for effective administration of these programs. In South Carolina, the SC DHEC will have to respond to two recent state Supreme Court cases. The availability of scarce staff resources to develop and administer such a program is an issue for SC DHEC administration.³¹ In Georgia, where no state protections exist, it is likely that isolated wetlands will receive no state regulatory protection unless the judiciary intervenes. In South Carolina and Georgia, it is hopeful that these states can use the results of the SEIWA project³² and other research done throughout the Southeast to provide scientific support for additional regulatory protection for these valuable wetlands.

On the federal level, legislative action in the near term to strengthen the CWA to address the impacts of the *SWANCC* and *Rapanos* decisions is very unlikely, although EPA and the Corps have proposed guidance to clarify the extent of jurisdiction under the *SWANCC* and *Rapanos* decisions.³³ Finally, there are a number of other wetland-related cases that are moving through the federal court system. One of these cases will eventually be heard by the Supreme Court, which could well affect CWA protections for wetlands. Hopefully, the scientific data that have been collected in the intervening years will provide useful information for the courts to use when making decisions, and which reflect the growing scientific data concerning the important level of ecosystem services provided by isolated wetlands. ■

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