



ENVIRONMENTAL
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State Wetland Protection

Status, Trends, & Model Approaches

*A 50-state study by the
Environmental Law Institute*

*With support from the
U.S. Environmental Protection Agency*

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Appendix: State Profiles

Alabama

I. Overview

Historically, Alabama contained an estimated 8,000,000 acres of wetlands. During the past 200 years, over 50 percent of this wetland area has been lost to timbering, agricultural drainage, suburban sprawl, and siltation.¹ Wetlands, consisting mostly of bottomland forests in alluvial flood plains and coastal salt marshes, presently cover between 8 to 10 percent of Alabama's surface area.² Alabama contains the greatest number of endangered species in any of the lower 48 United States, which makes wetland conservation in the state important not only for the watershed services they provide, but also for maintaining wildlife habitat.³

II. Regulatory Programs

Wetland definitions and delineation

The Alabama Water Pollution Control Act defines "waters" as:

all waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the state, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation, unless such waters are used in interstate commerce.⁴

In 2000, the Alabama Department of Environmental Management (ADEM) wrote in its Water Quality Report to Congress, required under Clean Water Act §305(b), that "waters within wetlands are, by definition, waters of the State in Alabama Water Pollution Control Act (AWPCA), but wetlands are not defined for their inherent values such as function, rareness, type, habitat, or value."⁵ ADEM did not include this statement in its subsequent 2002, 2004, or 2006 §305(b) reports.⁶

¹ DOUG PHILLIPS, ROBERT P. FALLS, *DISCOVERING ALABAMA WETLANDS*, (The University of Alabama Press) (2002).

² U.S. Department of Transportation Federal Highway Administration, *Results of the FHWA Domestic Scan of Successful Wetland Mitigation Programs*, at <http://www.fhwa.dot.gov/environment/wetland/scanrpt/al.htm> (last visited Sept. 11, 2007); U.S. FISH AND WILDLIFE SERVICE, *SOUTHEAST WETLANDS (1991)*, available at http://www.fws.gov/nwi/Pubs_Reports/Sewet/results.html.

³ U.S. Department of Transportation Federal Highway Administration, *Results of the FHWA Domestic Scan of Successful Wetland Mitigation Programs*, at <http://www.fhwa.dot.gov/environment/wetland/scanrpt/al.htm> (last visited Sept. 11, 2007).

⁴ ALA. CODE § 22-22-1(B)(2).

⁵ ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, *ALABAMA'S 2000 WATER QUALITY REPORT TO CONGRESS: CLEAN WATER ACT § 305(B) REPORT* Part VIII-2 (2002), available at <http://www.adem.state.al.us/waterdivision/WQuality/305b/2000WQRC/2000part8.pdf>.

⁶ ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, *ALABAMA'S 2006 WATER QUALITY REPORT TO CONGRESS: CLEAN WATER ACT §305(B) REPORT* Ch. 4 (2006), available at [http://www.adem.state.al.us/waterdivision/WQuality/305b/2006/2006%20AL%20IWQMAR%20Ch4%20\(Wetlands\)%20.pdf](http://www.adem.state.al.us/waterdivision/WQuality/305b/2006/2006%20AL%20IWQMAR%20Ch4%20(Wetlands)%20.pdf); ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, *ALABAMA'S 2004 WATER QUALITY REPORT TO CONGRESS: CLEAN WATER ACT §305(B) REPORT* Part 4 (2004), available at [http://www.adem.state.al.us/waterdivision/WQuality/305b/2004Report/2004%20Alabama%20BA305\(b\)%20Part%204%205BWetlands%20D.pdf](http://www.adem.state.al.us/waterdivision/WQuality/305b/2004Report/2004%20Alabama%20BA305(b)%20Part%204%205BWetlands%20D.pdf); ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, *ALABAMA'S 2002*

Alabama's Conservation and Natural Resources code includes wetlands in its definition of coastal areas. The Preservation and Development of Coastal Areas chapter of the Alabama Code defines "coastal areas" as:

the coastal waters, including the lands therein and thereunder, and the adjacent shorelands, including the waters therein and thereunder, strongly influenced by each and in proximity to the shorelines of Alabama and including transitional and intertidal areas, salt marshes, wetlands, and beaches. The area extends seaward to the outer limit of the United States territorial sea and extends inland from the shorelines only to the extent necessary to control shorelands, the uses of which have a direct and significant impact on the coastal waters.⁷

ADEM Administrative Code defines the inland boundary of the coastal area as being where the land surface elevation reaches the continuous 10-foot elevation above mean sea level.⁸

The state relies on the U.S. Army Corps of Engineers' 1987 *Wetlands Delineation Manual*⁹ for delineating wetlands.

Organization of state agencies

The primary state agencies that participate in wetland management and protection in Alabama are the Department of Environmental Management (ADEM) and the Department of Conservation and Natural Resources (ADCNR). ADEM's Coastal Section and ADCNR's State Lands Division Coastal Section share the responsibility of implementing the Alabama Coastal Area Management Program (ACAMP), which is authorized by the state's Environmental Management Act¹⁰ and the federal Coastal Zone Management Act of 1972 as amended. Within this program, which includes rules relating to the "dredging and/or filling of waterbottoms and/or adjacent wetlands" and mitigation,¹¹ ADEM is responsible for policy development, grant management, and planning activities. ADCNR is also responsible for submerged lands management, including leases, easements, and use consent of any submerged lands in the state.

The ADEM Coastal Section issues Coastal Zone Management Act consistency certifications and Clean Water Act (CWA) §401 water quality certifications or permits for projects proposed within the coastal area. The ADEM Coastal Section has approximately five full-time equivalent staff, composed of four staffers who address wetland issues, one who addresses Gulf-front beach and dune issues, and one supervisor. The wetland staff spend around 80 percent of their time entering facility data into computerized tracking systems, writing public notices, general correspondence, permitting, reviewing applications, negotiating avoidance and minimization, and ensuring that proposed projects are consistent with Department regulations prior to

WATER QUALITY REPORT TO CONGRESS: CLEAN WATER ACT §305(B) REPORT) Part IX, *available at* [http://www.adem.state.al.us/waterdivision/WQuality/305b/Draft2002/02305\(b\)Pt9%5BWet%5D.pdf](http://www.adem.state.al.us/waterdivision/WQuality/305b/Draft2002/02305(b)Pt9%5BWet%5D.pdf).

⁷ ALA. CODE § 9-7-10(1).

⁸ ALA. ADMIN. CODE r. 335-8-1-.02(k).

⁹ *See* U.S. ARMY CORPS OF ENGINEERS, WETLANDS RESEARCH PROGRAM TECHNICAL REPORT Y-87-1, CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL (1987), *available at* <http://el.erdc.usace.army.mil/elpubs/pdf/wlman87.pdf>.

¹⁰ ALA. CODE §22-22A-2.

¹¹ ALA. ADMIN. CODE r. 335-8-2-.02.

formalizing recommendations for project authorization. The remainder of their time is spent in the field evaluating proposed project sites, monitoring, and enforcing.¹²

ADEM's Mining and Nonpoint Source Section issues §401 water quality certifications for projects affecting wetlands outside of the coastal area. ADEM collects approximately \$50,000 per year in certification application fees and uses this money to fund about half a full time equivalent employee's work on §401 water quality certification. This work is divided among several employees, anywhere from two to four depending in the year and staffing level.¹³

§401 certification

ADEM's Coastal Section is responsible for reviewing CWA §401 certification applications and issuing certifications for projects in the state's coastal counties of Mobile, Baldwin, and Washington. ADEM's Mining and Nonpoint Source Section issues §401 certifications in the remaining 64 counties.¹⁴ The application for §401 water quality certification from ADEM is submitted jointly with a §404 application to the U.S. Army Corps of Engineers ("Corps"). The Corps reviews each application before ADEM will consider it. ADEM requires that individual §404 permit requests be placed on public notice with a 30-day comment period. This allows ADEM to review all comments received prior to making a final §401 determination. As a result of this arrangement, most individual permit applications that ADEM receives have already made modifications to their projects to meet water quality standards; thus, ADEM approves the majority of §401 applications that it reviews. The two sections issued a combined 81 §401 certifications in fiscal year (FY) 2006. They issued 79 certifications in FY 2005 and 74 in 2004.¹⁵

Nationwide permits

ADEM's Coastal Section provided coastal consistency certification without any additional conditions or requirements to 17 categories of the 2002 nationwide permits (NWP).¹⁶ It also authorized conditioned coastal certification to 15 other categories of NWPs.¹⁷ Three categories

¹² Personal communication with Leslie Turney, Ala. Dep't of Env'tl Mgmt. (Jan. 17, 2006).

¹³ Personal communication with Richard Hulcher, Ala. Dep't of Env'tl. Mgmt. (May 11, 2006).

¹⁴ Turney, *supra* note 12.

¹⁵ Hulcher, *supra* note 13.

¹⁶ Letter from Steven O. Jenkins, Chief Field Operations Division Alabama Department of Environmental Management, to Colonel Robert B. Keyser, District Engineer U.S Army Corps of Engineers 1-4 (Mar. 12, 2002) (on file with ELI). The Nationwide Permits that ADEM has approved for the coastal area are: NWP#1 – Aids to Navigation; NWP#2 – Structures in Artificial Canals; NWP#4 – Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities; NWP#6 – Survey Activities; NWP#8 – Oil and Gas Structures; NWP#9 – Structures in Fleeting and Anchorage Areas; NWP#11 - Temporary Recreational Structures; NWP#15 – U.S. Coast Guard Approved Bridges; NWP#17 – Hydropower Projects; NWP#22 – Removal of Vessels; NWP#23 – Approved Categorical Exclusions; NWP #28 – Modifications of Existing Marinas; NWP#30 – Moist Soil Management for Wildlife; NWP#31 – Maintenance of Existing Flood Control Facilities; NWP#33 – Temporary Construction, Access and Dewatering; NWP#35 – Maintenance Dredging of Existing Basins; and NWP#37 – Emergency Watershed Protection and Rehabilitation. *Id.*

¹⁷ *Id.* The Nationwide Permits that ADEM has conditionally approved for the coastal area are: NWP#3 – Maintenance; NWP#5 – Scientific Measuring Devices; NPW#7 – Outfall Structures and Maintenance; NWP#10 – Mooring Buoys; NWP#12 – Utility Line Activities; NWP#13 - Bank Stabilization; NWP#16 – Return Water From Upland Contained Disposal Areas; NWP#18 – Minor Discharges; NWP#19 – Minor Dredging; NWP#20 – Oil Spill Cleanup; NWP#25 – Structural Discharges; NPW#27 – Stream and Wetland Restoration Activities; NWP#32 –

of NWP#s were determined to be non-applicable within the coastal area of Alabama,¹⁸ and eight categories of NWP#s were denied coastal consistency certification.¹⁹

The ADEM Mining and Nonpoint Source Section has established a list of 34 §401 water quality certification conditions applicable to all NWP#s throughout the state, including those certified for the coastal area, and the agency has reserved the right to request additional information or add additional requirements to these certifications.²⁰

Alabama's action on the 2007 NWP#s could not be reviewed within the reporting period.

Mitigation

With the exception of a few basic regulatory requirements for mitigation of coastal area wetland impacts, as defined in the state rules for the Coastal Program, the State of Alabama has not adopted legislation, policies, or guidelines regarding compensatory mitigation for wetlands and generally defers to the Corps for wetland-related jurisdictional and mitigation issues. State regulations do require that “[m]itigation for wetland impacts resulting from an approved project shall involve the creation of wetlands or the restoration and enhancement of existing degraded wetlands; [and] [p]rior to permitting or certification of a use for which mitigation is required, the applicant shall submit to the Department for review and approval a mitigation plan...”²¹

Although Alabama has no formal guidelines for Mitigation Banking Review Teams, both ADCNR and ADEM have participated in MBRTs in coordination with the Corps' Mobile and Nashville Districts.²²

III. Water Quality Standards

Alabama has not adopted wetland-specific water quality standards (WQS), although state standards do apply to all state waters. The surface WQS outline numeric and narrative water quality criteria.²³ The state antidegradation policy is also not specific to wetlands, but does provide that the level of water quality necessary “to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life... and to

Completed Enforcement Actions; NWP#36 – Boat Ramps; and NWP#38 – Cleanup of Hazardous and Toxic Waste. *Id.*

¹⁸ *Id.* The Nationwide Permits not applicable within the coastal area of Alabama are those related to: Surface Coal Mining Activities; State Administered Section 404 Programs; and Cranberry Production Activities. *Id.*

¹⁹ *Id.* The Nationwide Permits that ADEM has denied coastal consistency certification are: NWP#14 – Linear Transportation Crossings; NWP#29 – Single Family Housing; NWP#39 – Residential, Commercial, and Institutional Developments; NWP#40 – Agricultural Activities; NWP#41 – Reshaping Existing Drainage Ditches; NWP#42 – Recreational Facilities; NPW#43 – Stormwater Management Facilities; and NWP#44 – Mining Activities. *Id.*

²⁰ *Id.*

²¹ ALA. ADMIN. CODE r. 335-8-2-.03.

²² Personal communication with Phillip Hinesley, Ala. Dep't of Conservation and Natural Resources (Jan. 11, 2006); Turney, *supra* note 12.

²³ ALA. ADMIN. CODE r. 335-6-10.

provide for the prevention, abatement and control of new or existing water pollution” should be maintained and protected.²⁴

IV. Monitoring and Assessment

Alabama does not have a formal program for wetland monitoring and assessment, but does conduct related activities through grant-funded projects. The most comprehensive of these projects is funded by a FY 2000 U.S. Environmental Protection Agency (EPA) Wetland Restoration Grant to the ADEM Coastal Section. ADEM used a portion of these funds to assess wetlands within the Alabama Coastal Nonpoint Pollution Control Program (ACNPCP) Management Area of Mobile and Baldwin counties. Assessment included field reconnaissance, aerial photography, anecdotal observations, natural resource surveys and reports, and interviews with local natural resource managers.²⁵

Additionally, ADEM, ADCNR, and ACNPCP have been coordinating with the Corps, U.S. Fish and Wildlife Service, and the Mississippi Department of Marine Resources to develop regionalized wetland functional assessment tools such as Hydrogeomorphic (HGM) guidebooks. Although guidebooks have not yet been developed for all the wetland types represented in coastal Alabama, two HGM Guidebooks regionalized to Coastal Mississippi and Alabama have thus far been completed by the Corps’ Research and Development Center (a Tidal Fringe Wetland guidebook excluding freshwater systems and a Coastal Plain Headwater Slope Wetland guidebook). However, very little training on field implementation/utilization of the HGM guidebooks has been conducted to date, and the Wetland Rapid Assessment Procedure (WRAP) remains the primarily utilized wetland functional assessment methodology.²⁶

WRAP, developed by the South Florida Water Management District, is being used with some regional interpretation to evaluate wetlands when there is a question of wetland quality and function. Mitigation banks operating outside of Alabama’s coastal area also use WRAP to assess bank sites, determine credits available in the bank, and evaluate impacted wetlands being compensated for by credits purchased from their bank.²⁷

Finally, the Mobile Bay National Estuary Program (MBNEP), ADCNR’s State Lands Division, and ADEM’s Coastal Program have conducted a joint effort to map wetlands and submerged aquatic vegetation (SAV) in the coastal counties of Mobile and Baldwin. Color infrared photography was used to map the wetlands in the two counties; the results of this effort, completed in 2007, are available from MBNEP and the U.S. Geological Survey. Mapping of SAV in the two counties was completed in 2002, using true color photography.²⁸ A report, *Historical SAV Distribution in the Mobile Bay National Estuary Program Area and Ranking Analysis of Potential SAV Restoration Site*, compares the distribution of historic SAV with the

²⁴ ALA. ADMIN. CODE r. 335-6-10-.04.

²⁵ See ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, 2006 INTEGRATED WATER QUALITY MONITORING & ASSESSMENT REPORT 60 (2006), available at <http://www.adem.state.al.us/WaterDivision/WQuality/305b/WQ305bReport.htm> (last visited Sept. 10, 2007).

²⁶ Turney, *supra* note 12.

²⁷ *Id.*

²⁸ Personal communication with Carl Ferraro, Ala. Dep’t of Conservation and Natural Resources (July 28, 2006).

2002 MBNEP SAV survey in coastal Alabama to identify areas of major change and to provide a guide for potential restoration opportunities.²⁹ Future assessments will continue analysis of historic changes in SAV in the MBNEP study area.³⁰

V. Restoration and Partnerships

Alabama does not operate a formal, state-level, wetland restoration program; however, both ADEM and ADCNR conduct some restoration-related activities. As noted above, ADEM Coastal Section is using funds from an EPA Wetland Restoration Grant to restore wetlands in coastal Mobile and Baldwin counties. In ADEM's 2006 §305(b) report, the agency tentatively suggests four focus restoration areas based on the assessment data they have gathered to date.³¹

In 1992, Alabama's Forever Wild Program was established by constitutional amendment.³² The amendment establishes the Forever Wild Land Trust to fund the purchase and preservation of lands, including wetlands, "to protect the natural heritage and diversity of Alabama for future generations."³³ The Forever Wild Land Trust is funded by the trust income earned from the Alabama Trust Fund each year. Forever Wild receives ten percent of the trust income earned each year, not to exceed \$15 million dollars.³⁴ ADCNR is the lead management agency of the Forever Wild Program. As of January 20, 2006, the Forever Wild Program had purchased and preserved approximately 44,000 acres of wetlands.³⁵

Additionally, the Gulf of Mexico Foundation's Community-based Restoration Partnership (GCRP) combines the efforts of the National Oceanic and Atmospheric Administration (NOAA) Community-Based Restoration Program, the Gulf of Mexico Program's Gulf Ecological Management Sites program, and other Gulf State natural resource agencies in order to bring together state and federal governmental entities, non-profit organizations, citizens, and businesses to provide funding and support for coastal habitat restoration projects. The partnership funds citizen-driven projects that restore aquatic marine habitats, benefit living marine resources, and foster local stewardship of sites throughout the Gulf of Mexico region and the adjacent Caribbean.³⁶ Currently, the majority of funding comes from two sources: NOAA's community-based restoration programs and the EPA Gulf of Mexico Program.³⁷ This program has funded numerous restoration projects in the two coastal counties in Alabama; sites that have been funded thus far include Bohemian Park, Alonzo Landing, Mon Louis Island, Robinson Island and the Weeks Bay National Estuarine Research Reserve.³⁸

²⁹ See BARRY A. VITTOR & ASSOCIATES, INC., *HISTORICAL SAV DISTRIBUTION IN THE MOBILE BAY NATIONAL ESTUARY PROGRAM AREA AND RANKING ANALYSIS OF POTENTIAL SAV RESTORATION SITES (2005)*, available at http://www.mobilebaynep.com/site/news_pubs/news/Documents/NEP_historicSAV.pdf.

³⁰ *Id.*

³¹ Alabama Department of Environmental Management, *supra* note 25.

³² ALA. CONST. amend. 543.

³³ *Id.*

³⁴ *Id.*

³⁵ Alabama Department of Conservation and Natural Resources, *Forever Wild Program Acquisitions*, at <http://www.outdooralabama.com/public-lands/stateLands/foreverWild> (last visited July 3, 2006).

³⁶ See Gulf of Mexico Foundation, at <http://www.gulfmex.org/restoration.htm> (last visited Sept. 10, 2007).

³⁷ Personal communication with Quenton Dokken, Gulf of Mexico Foundation (August 8, 2006).

³⁸ Ferraro, *supra* note 28.

VI. Education and Outreach

ADCNR partners with Alabama Wildlife Federation, Alabama Power, Alabama Cooperative Extension System, National Wildlife Federation, Georgia Wildlife Federation, Alabama Forestry Commission, and Oregon State University Extension Service to run the Alabama Outdoor Classroom program. The program helps educators and communities establish wildlife habitat and outdoor classrooms on their school grounds. Of the ten schools with certified outdoor classrooms, half include a wetland component.³⁹

ADCNR also invites educators and leaders to attend free introductory workshops and receive activity guides for three education series, all of which relate to, but do not focus solely on, wetlands. Project WILD introduces participants to wildlife and ecological conservation; Aquatic WILD, to aquatic ecology and conservation; and Project WET (Water Education for Teachers), to the water cycle, watersheds, and water conservation.⁴⁰

ADEM also coordinates through ACNPCP to present best available wetland-related technologies in the form of technical studies, workshops, and conferences to state and federal regulatory staff, consultants, and the general public. Recent accomplishments have included the presentations of the *Alabama Coastal Wetland Rapid Assessment Procedure Workshop* and the *Alabama Coastal Wetland Plant Identification Workshop*. In April of 2006 the ACNPCP sponsored, through ADEM, the first regional *Alabama Stream and Wetlands Restoration Conference 2006*. These and other similar projects have been accomplished in partnership with the Mobile County Soil and Water Conservation District, the Alabama Coastal Foundation and the South Alabama Regional Planning Commission.⁴¹

VII. Coordination with State and Federal Agencies

ADEM coordinates regularly with the U.S. Army Corps of Engineers on §404 permit applications and wetland mitigation banking issues.⁴²

ADEM, ADCNR, and the ACNPCP have regularly coordinated with the U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and Mississippi Department of Marine Resources to develop wetland mitigation guidance, Mitigation Banking Instrument Templates, and regionalized wetland functional assessment tools such as HGM guidebooks. These guidebooks apply to specific wetland types within the Northern Gulf of Mexico.⁴³ ADEM and the Alabama Coastal Nonpoint Pollution Control Program entered into a contract in November 2006 with the

³⁹ Alabama Wildlife Federation, *Welcome to the Alabama Outdoor Classroom Program*, at http://www.alabamawildlife.org/conservation_education/classrooms.asp (last accessed July 3, 2006).

⁴⁰ Alabama Department of Conservation and Natural Resources, *Conservation Education*, at <http://www.outdooralabama.com/education> (last visited Sept. 10, 2007).

⁴¹ Personal communication with Randy Shaneyfelt, Ala. Dep't of Env'tl Mgmt. (Aug. 7, 2006).

⁴² Turney, *supra* note 12.

⁴³ *Id.*

Baldwin County Soil and Water Conservation District to provide Mobile Bay National Estuary Program facilitation for the Coastal Alabama Clean Water Partnership.⁴⁴

ADCNR also coordinates with the Mobile Bay National Estuary Program and the Dauphin Island Sea Lab to run the Dauphin Island Sea Lab Coastal Policy Center, which works on wetland education, research, site analysis, and construction, among other subjects.⁴⁵ ADCNR, with funding from NOAA, also runs the Weeks Bay National Estuarine Research Reserve, which includes over 1,600 acres of marsh and wetland.⁴⁶ Finally, ADCNR works with the USDA Natural Resources Conservation Service to help private landowners implement best management practices on their lands containing wetlands.⁴⁷

VIII. Acronyms and Abbreviations

ACAMP – Alabama Coastal Area Management Program
ACNPCP – Alabama Coastal Nonpoint Pollution Control Program
ADCNR – Alabama Department of Conservation and Natural Resources
ADEM – Alabama Department of Environmental Management
AWPCA – Alabama Water Pollution Control Act
CWA – Clean Water Act
EPA – U.S. Environmental Protection Agency
FY – Fiscal Year
GCRP – Gulf of Mexico Foundation’s Community-based Restoration Partnership
HGM – Hydrogeomorphic
MBNEP – Mobile Bay National Estuary Program
NOAA – National Oceanic and Atmospheric Administration
NWPs – Nationwide Permits
(Project) WET – Water Education for Teachers
SAV – Submerged Aquatic Vegetation
USDA – U.S. Department of Agriculture
WQS – Water Quality Standards
WRAP – Wetland Rapid Assessment Procedure

⁴⁴ Shaneyfelt, *supra* note 41.

⁴⁵ See Dauphin Island Sea Lab, *Coastal Planning Center*, at <http://www.disl.org/coastal> (last visited Sept. 10, 2007).

⁴⁶ National Estuarine Research Reserve System, *Weeks Bay Reserve*, Alabama, at <http://nerrs.noaa.gov/WeeksBay/welcome.html> (last visited Sept. 10, 2007).

⁴⁷ Hinesley, *supra* note 22.