

Debra S. Segal, M.S.



General

Ms. Segal has 20 years of experience providing ecological services including environmental permitting, establishing jurisdictional wetland boundaries, designing and overseeing construction of wetland mitigation sites, conducting qualitative and quantitative vegetation monitoring, conducting soil assessments, conducting wildlife evaluations, and monitoring surface water hydrology. She has conducted ecological research in upland reclamation, wetland regeneration, nutrient cycling, and hydric soils.

Education

Master of Science, 1987, Environmental Engineering Sciences, University of Florida

Bachelor of Science, 1983, Soils and Land Use, University of Florida

Areas of Specialization

- Wetlands Ecology
- Wetland Mitigation and Ecological Restoration
- Environmental Permitting
- Hydric Soils
- Wildlife Ecology

Specific Project Experience

- Ms. Segal conducted a detailed wildlife survey, wetland jurisdictional assessment, and habitat assessment for a roughly 2,000 acre site for a large-scale (1,000 ac.) treatment wetland in Polk County, FL. The treatment wetland is designed as a flow-through treatment system to improve water quality in the highly eutrophic Lake Hancock before water discharges to the Peace River and flows down to the Charlotte Harbor estuary. Documented wildlife populations under existing agricultural land use activities and compared wildlife value to the proposed treatment wetland land use. Delineated wetlands and obtained field verification from state and federal agencies. Mapped habitats throughout the site. Responsible for preparing all ecological-related items for the Environmental Resource Permit application.
- Ms. Segal monitored ecological properties in a treatment wetland pilot project to address design and construction-related concerns of implementing a large-scale treatment wetland on reclaimed clay settling areas. Ecological monitoring consisted of assessments of planted and recruited wetland vegetation,

- cogongrass eradication methods, water levels, and water quality. Analyzed data and produced quarterly and annual reports.
- Ms. Segal conducted ecological monitoring of vegetation, birds, fish, macroinvertebrates, and water quality at the Harris County Beltway 8 Constructed Wetlands, a 180-acre treatment wetland located in Harris County, Texas. Analyzed ecological data and produced the annual wetlands monitoring report.
 - Ms. Segal conducted ecological monitoring at the Great Swamp, a natural 480-acre riverine floodplain in South Carolina that has been receiving treated municipal wastewater since 1998. Ecological monitoring consisted of assessing vegetation, birds, fish, macroinvertebrates, and water quality. Also planted new wetland seedlings in the designated restoration areas within the Great Swamp.
 - Ms. Segal assisted in the design and permitting of the City of Lake City's Harris Stormwater Wetland project to improve the water quality of stormwater before it enters Alligator Lake in Columbia County. The stormwater treatment wetland was constructed to attenuate and treat stormwater that drains from commercial and residential areas in Lake City. The treatment wetland design included grade elevations, slopes, infall and outfall structures, construction sequencing, vegetation planting plan, monitoring plan, and potential maintenance activities.
 - Ms. Segal assisted in the design of a wetland stormwater treatment system at the Kennedy Space Center industrial area to provide stormwater attenuation and treatment through the use of a created wetland system. The stormwater treatment wetland was designed to convert four large borrow pits into a large and inter-connected created wetland intended to mimic natural wetland communities, maximize stormwater detention time, and maximize stormwater treatment. Delineated wetlands and conducted a wildlife and habitat survey. Performed extensive Uniform Mitigation Assessment Method (UMAM) analysis on the existing and proposed conditions to determine the amount of mitigation credit available to NASA. Also performed UMAM analysis on multiple hypothetical wetland impact sites to determine the potential mitigation value for future construction activities. Conducted pre-application meetings with regulatory agency staff to discuss permitting activities, UMAM calculations, and using the site as a Regional Mitigation Area.
 - Ms. Segal designed, permitted, and supervised construction activities of a freshwater marsh at the Kennedy Space Center in Brevard County. The freshwater marsh was created from an abandoned citrus grove that provided low wildlife and ecological value, and was created to compensate for wetland impacts associated with construction of a new roadway called Space Commerce Way. Design of the freshwater marsh included habitat development, slope design, vegetation planting plan, remedial plan, and monitoring plan. Several design elements were added to increase wildlife habitat, and included deep and shallow zones, upland islands, hydrologic connections to adjacent water bodies, and snags for bird roosting. Conducted post-construction compliance monitoring.

- Ms. Segal designed, permitted, and oversaw construction of a lake enhancement project for the City of Minneola's Trailhead Park. Her design included excavating accumulated sediments and restoring the lake bottom to original grade. Tasks included design elevation, excavation levels, seasonal high water determination, and review of historic photos. Ms. Segal designed educational signs for the park and notified nearby schools of the signs. She provided bidding, construction services, and construction oversight during earthwork and vegetation planting. Ms. Segal also conducted semi-annual monitoring, post-construction inspections, and reporting.
- Ms. Segal designed, permitted, and supervised construction of 17 acres of wetlands to mitigate for impacts to other wetlands. She developed a wetland creation plan including design elevations, soil augmentation, vegetation planting, and compliance monitoring. She provided supervision and oversight during construction of the created wetland and monitored the created wetland for four years by assessing tree survival, tree growth, recruitment of wetland plants, invasion of undesirable plants, hydrologic conditions, and wildlife utilization. She prepared annual monitoring reports for regulatory agencies and received successful release of the created wetland after four years.
- Ms. Segal conducted a two-year research study on investigating construction techniques and soil properties which influence successful reclamation of native upland communities in phosphate mined areas. Investigated native communities such as pine flatwoods, sand pine scrub, and sandhill communities. Examined parameters that affect establishment and colonization of nuisance and exotic species. Collected extensive soil samples and compared multiple soil parameters to coverage of desirable and exotic plant species.
- Ms. Segal provided technical expertise to the SJRWMD in support of its MFL Program. She investigated lakes, creeks, and rivers and conducted detailed soil analyses across transects at these sites. Assessed soils data and wrote soils reports for over 30 MFL sites. Also produced a Manual of Sandhill Lake Hydric Soils Indicators. Provided peer-review coordination for two proposed MFL plans.
- Ms. Segal determined the feasibility of restoring a Town beach by evaluating the coastal engineering, environmental permitting, ecological resources, construction activities, and cost estimate. Evaluated seagrasses and other ecological resources at two proposed sites. Developed conceptual designs of a Town beach that included the beach footprint, terminal structures, geotubes, a new channel, and recreational structures. Developed cost estimates to perform environmental studies necessary for permitting, design and permitting activities, bid activities, and construction. Worked with the University of Florida to perform a wave climate analysis, sediment transport analysis, beach nourishment simulations, and equilibrium profile and fill analysis.