



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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May 3, 2007

George F. Givens, Counsel
North Carolina Legislature
545 Legislative Office Building
300 North Salisbury Street
Raleigh, North Carolina 27603

Dear Mr. Givens,

The U.S. Fish and Wildlife Service (Service) appreciates the opportunity to provide technical input to the Senate Agriculture, Environment, and Natural Resources Committee and the House Committee on Environment and Natural Resources during the "605" stakeholder process for the Solid Waste Management Act of 2007 (SWMA, Senate Bill 1492/ House Bill 1233). We are the principal Federal agency responsible for conserving, protecting and enhancing fish, wildlife and plants and their habitats for the continuing benefit of the American people. To meet that mission, one of our important responsibilities is managing the 95- million-acre National Wildlife Refuge System, which encompasses 547 national wildlife refuges (NWR). This letter is intended to provide the technical basis for inclusion of a 5-mile protective buffer around NWRs in the final SWMA. Floodplain, wetland, and stream standards have been established in the in the draft SWMA and refuge buffers could easily be added based on the following technical information.

Eleven of our NWRs are located in North Carolina, comprising over 400,000 acres of habitat for our nation's wildlife. Of those refuges, 6 are located within 5 miles of existing (6), closed (6), or proposed (2) landfill sites (including Great Dismal Swamp NWR in Camden County; Alligator River NWR in Dare County; Mattamuskeet, Swanquarter, and Pocosin Lakes NWRs in Hyde County; and Roanoke River NWR in Martin and Washington Counties)¹. Because multiple landfill sites lie in close proximity to NWRs we manage in the public trust, the Service has a keen interest in mechanisms to avoid, detect and minimize the potential adverse impacts of landfills to sensitive areas (and NWRs in particular). Accordingly, we have provided technical input to the NC Division of Waste Management (DWM) relative to delineating and managing sensitive areas and resources and identifying mechanisms to prevent or mitigate potential impacts associated with landfill siting during the Solid Waste Management Study. Although the current version of the SWMA would require all proposed landfills to complete an environmental impact study and includes additional landfill standards for environmental protection (e.g., liner provisions for construction and demolition debris landfills, broader stream and wetland buffer requirements, and greater waste separation from groundwater), consideration of an additional provision in the SWMA to address buffers for refuges is warranted.

¹ Landfill sites in close proximity to NC refuges include municipal solid waste (MSW), construction and demolition debris (C/D), treatment and processing, and demolition facilities. Composting and land clearing and inert debris landfills were not included in our assessment.

Potential impacts of landfills to refuges are not limited to close proximity to the landfill site. Aesthetic, traffic related and other impacts extend to a much larger geographic area and are the basis for wider protective buffers. A synopsis of information supporting the 5-mile protective buffer for NWRs follows:

- Wider buffers for sensitive areas such as NWRs have precedent in other states. New Jersey prohibits hazardous waste landfill siting within 6.25 miles of Class I areas to protect sensitive areas (designated as Class I prevention of significant deterioration [PSD] under the Clean Air Act) from air quality impacts. Class I areas typically include National Parks greater than 6,000 acres and national wilderness areas greater than 5,000 acres. The buffer required by New Jersey for Class I areas is indicative of the potential radius of influence of landfills with regard to air quality. One NWR in North Carolina is designated as a Class I area (while most others are considered Class II). Based on New Jersey's example, a 5 mile buffer appears appropriate to protect against air quality degradation and nuisance odors associated with large landfills.

Georgia municipal solid waste landfill criteria for performing site acceptability studies requires a separation of 3.2 miles between new landfills and National Historic Sites. Although NWRs are not specifically mentioned in Georgia's regulations, refuges of national significance are typically given equal or higher priority with respect to protection from environmental damage for planning purposes; therefore, NWR buffers could exceed the setback distance deemed suitable for protecting Georgia's historic sites.

- Maintaining the aesthetic quality of NWRs is integral to sustaining public use. A primary goal of all North Carolina NWRs is to provide opportunities for wildlife-oriented interpretation, outdoor recreation, and environmental education. Therefore, alteration of the viewscape is a primary concern because degradation of the aesthetics of refuge lands could deter use and enjoyment of those areas. This is really important in the relatively flat coastal plain where large landfill piles can alter the viewscape over great distances. For example, a large landfill with a height of 250 feet would be visible for a distance of up to 20 miles at sea level (without visual obstructions between the site and viewer; not uncommon given the prevalence of agricultural land in eastern North Carolina). In order to protect the visual integrity of NWRs, a recommended minimum setback of 5 miles appears reasonable.
- Protecting migratory birds on NWRs necessitates separation from landfill scavengers. Some MSW landfills attract significant scavenger gull populations that may use nearby refuge open water or wetlands for roosting resulting in diminished value of these habitats for other migratory birds through displacement, depredation of nesting sites, and harassment. Because a key goal for all North Carolina refuges is to provide habitat for waterfowl and other migratory birds, landfill buffers would provide important protections for these species. Existing MSW and hazardous waste landfill siting prohibitions include protective setbacks from airports based on the potential for collisions with large bird populations attracted by landfill odors and forage. Minimum federal requirements include an approximate 2-mile setback from landing fields for turbojets and or 1-mile setback for propeller aircraft; however, several

states have broadened that restriction up to a 6-mile landfill restriction radius around airfields (e.g. Tennessee). Given that setbacks to airports are based on probable areas of use and flight patterns of scavenging bird populations at landfills, it appears that these buffers would also provide protection for migratory birds and their habitats (although it is clear that gulls can utilize roost sites significantly beyond these buffer zones).

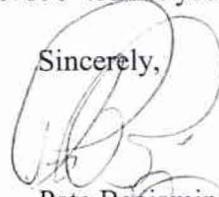
Specific impacts to NWRs that may result from improper landfill siting, design and operation that could be minimized with a 5-mile refuge buffer provision include: diminished public enjoyment of NWRs and resulting reduction in visitation (viewscape, noise and odor impacts), alteration of wildlife foraging patterns (given attractive nuisance of landfilled wastes to wildlife), reduced quality of habitat to wildlife, modification of hydrology patterns and potential offsite consequences, water quality degradation resulting from potential failures or unintended releases, alteration of function and value of local wetland areas, and increased vehicular traffic and impacts to wildlife. Protective buffers for refuges are particularly important in North Carolina because 10 refuges and their surrounding lands (including the six that are located near landfill sites) lie in the Coastal Plain and are often characterized by marginally suitable conditions for landfill siting (e.g. high water table, presence of wetland soil types, proximity to flood prone areas, etc.) enhancing the potential for environmental damage.

The Service's concern regarding impacts of landfills on NWRs is longstanding and based on demonstrated impacts of landfill operations on North Carolina refuge resources. In 1989, the Service conducted a survey of metal contamination in fish and sediment at the then active East Lake MSW landfill located next to Alligator River NWR (Benkert, 1989) and found elevated sediment metal residues at a landfill discharge point; however, transport of metals to canals downstream (and the refuge) was not indicated. In 2000, the Service and partners investigated the closed East Lake Landfill as well as the newer Dare County C/D Landfill. Impacts at the East Lake Landfill were limited and were again not of management concern to the Service; however, multiple lines of evidence among study results (North Carolina Division of Water Quality [NCDWQ] 2000; Winger et al. 2005) documented contamination, and biological effects of contamination, in canals draining the site of the active C/D Landfill. Runoff or leachate from the landfill was identified as having adversely impacted habitat quality in drainage canals which ultimately run through the refuge. Chronic landfill inputs to adjacent waters (e.g., stormwater) are the focus of an ongoing study.

The landfill moratorium (Senate Bill 353) was enacted based on several factors including "protection and enhancement of water quality", and the presence of many "rare and endangered species of plants and animals", "*parks, natural areas, and wildlife refuges [established] to protect habitats for migratory birds and other species*", and "fragile ecosystems exist[ing] in the State which are in need of further study and protection" (S353). However, the current SWMA language does not incorporate standards to assure protection of sensitive resources such as NWRs. While completion of an environmental impact study as required by the draft legislation would make the siting and permitting process more transparent, it would not necessarily assure that an adequate separation distance between NWRs and landfills is maintained. The SWMA suggests that the Commission for Health Service shall establish rules in the future that "incorporate measures necessary to minimize impacts to natural, historic, and cultural resources, including, but not limited to, wetlands, critical fisheries habitat, parks, recreation areas, cultural and historic sites, and potential water

supplies". Using the technical input we've cited, such action could be achieved during this rulemaking effort to fully address concerns that prompted S353. The Service respectfully requests that additional attention to protection of our invaluable NWR resources be considered by the SWMA decision-makers. To facilitate those deliberations, a map illustrating the location of North Carolina refuges is attached and our staff is available to answer any questions or present additional information to the House and Senate Committees. Please contact Sara Ward (x. 30) of this office at 919/856-4520 if you have any questions.

Sincerely,



Pete Benjamin
Ecological Services Supervisor

References:

Benkert, KA. 1989. Survey of mercury and other metals in fish and sediments at East Lake Landfill and Alligator River National Wildlife Refuge, Dare County, North Carolina. U.S. Fish and Wildlife Service, Raleigh Ecological Services Office, Raleigh, NC. May

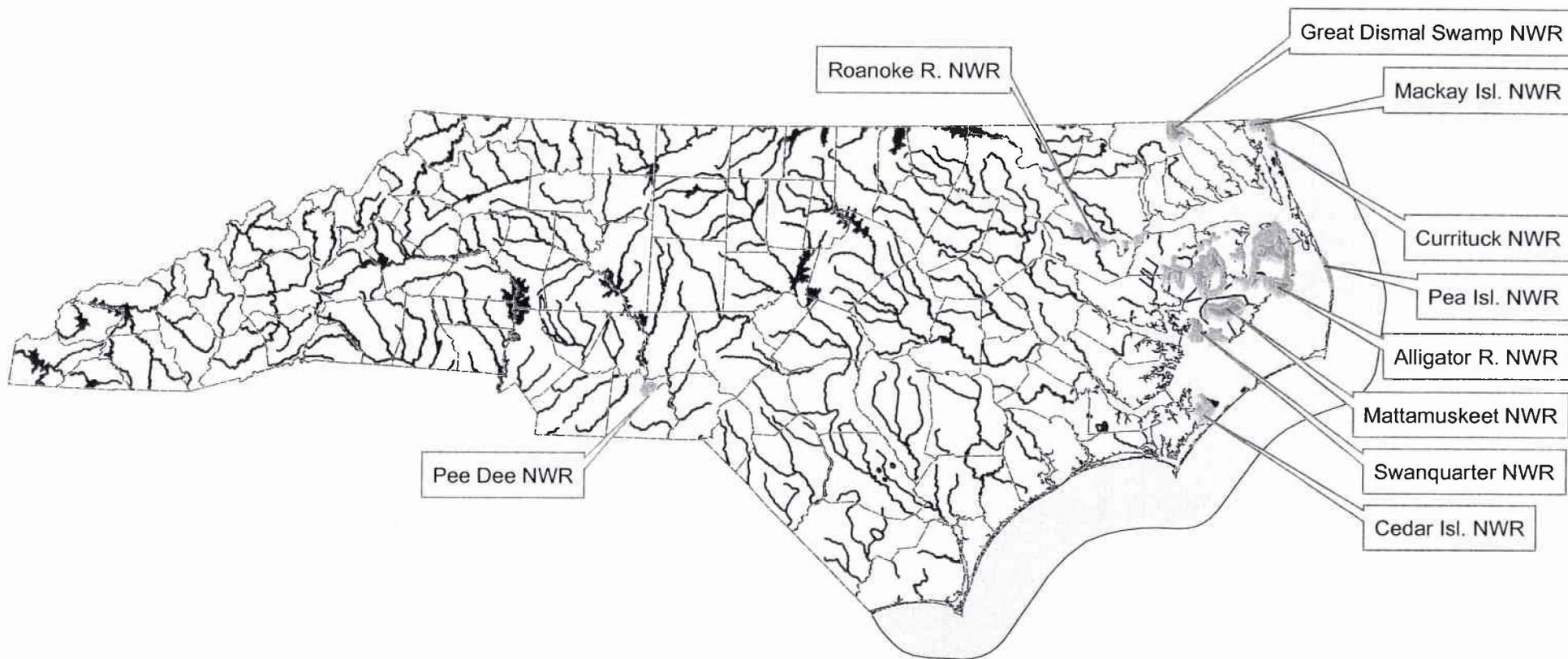
North Carolina Division of Water Quality. 2000. December 11, 2000 memorandum on the effects of Dare County landfills. Biological Assessment Unit, Raleigh, NC.

Winger, PV, PJ Lasier, and T Augspurger. 2005. Potential impact of Dare County Landfills on Alligator River National Wildlife Refuge. *Integrated Environmental Assessment and Management*. 1(3): 267-82.

cc:

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North Carolina National Wildlife Refuges (NWR)



Legend

- National Wildlife Refuge Boundary
- County Boundaries
- Major hydrography