MEMORANDUM TO ASSERT JURISDICTION FOR 2007-657-1JT

Subject: Jurisdictional Determination for 2007-657-1JT on Interdunal Wetlands Adjacent to Traditional Navigable Waters

Summary

The U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) are asserting jurisdiction over five interdunal wetlands for jurisdictional determination (JD) 2007-657-1JT. This determination is based on our finding that these wetlands are adjacent (as defined at 33 CFR 328.3(c) and 33 CFR 328.3(a)(7)) to Privateer Creek, the North Edisto River, and the Atlantic Ocean, all traditional navigable waters (TNWs).[1] This JD is consistent with the Clean Water Act (CWA), the agencies' regulations, relevant case law, and the legal memorandum *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States ("Rapanos Guidance").*

I. Introduction

This memorandum establishes the basis for asserting jurisdiction over five interdunal wetlands for JD 2007-657-1JT. First, we provide a baseline assessment (in Section II) to demonstrate that all five wetlands are functioning as an integrated interdunal system. This assessment characterizes the project area and provides an ecological inventory for the site to demonstrate how the wetlands are functioning as an integrated interdunal system. After the baseline assessment, we provide the basis for determining that the interdunal wetland system (that includes the five wetlands) is adjacent to the TNWs. This determination is based upon an examination of a combination of factors including proximity, hydrologic connectivity, position in the landscape, and other physical factors that demonstrate the wetlands are adjacent to the TNWs.

[1] All waters are subject to the ebb and flow of the tide.

II. Baseline Assessment for Interdunal Wetland System

Based on an examination of the site location and characteristics for the project wetlands, all five wetlands subject to this JD are part of an integrated interdunal wetland system. This is based on a variety of factors, including: proximity of the wetlands to each other and the TNWs, physical characteristics (size, shape, location in floodplain), the community profiles, and the dominant wetland soils and plants supported by the interdunal wetland system.

A. Location

The project site for this JD encompasses 227.34 acres and is located at 32.57213° north latitude and -80.18233° west longitude on the Camp Saint Christopher site on Seabrook Island. Seabrook Island is a barrier island located in Charleston County, off the coast of South Carolina. The project site consists predominantly of an interdunal environment, which supports five freshwater interdunal wetlands totaling approximately 13 acres in size. The wetlands are in close proximity to each other and to the surrounding TNWs, with Privateer Creek and the North Edisto River to the north/northwest and the Atlantic Ocean to the South.

B. Site Characteristics for Project Area

The project area is located on a barrier island, which is a narrow strip of sand located some distance offshore of the mainland. Barrier islands form along seacoasts throughout the world whenever there is adequate supply of sand, a low sloping coastal plain, and a wave dominated energy regime with tidal ranges less than three meters.[2] The actions and energy of the ocean initiate the formation of barrier islands and its series of dune ridges, interdunal depressional areas, and freshwater interdunal wetlands. Barrier islands can be very transient in that sea level, anthropogenic effects, and storm events can cause barrier islands to migrate landward, seaward, or laterally with adequate sand supplies and longshore currents. As these barrier islands mature and migrate, they typically form a series of dunes. The primary and secondary dunes generally occur near the shorefront and migrate in direct response to the seasonal stresses of wind and oceanic processes.[3] Behind these more active dune fields, more stable fields generally develop. These areas typically support vegetation, including perennial shrubs, trees and vines. As a result of the more stable environment and increased vegetation, topographic relief in these areas is generally less pronounced than those dunes on the shorefront. In both cases, the environmental conditions may create depressional areas behind the dune ridges; it is in these areas that freshwater interdunal wetlands may occur. Generally,

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[2] Bascom, W. 1980. *Waves and beaches, the dynamics of the ocean surface*. Anchor Press, Garden City. 366 pp.

[3] For example, during the summer, the beaches and dunes will generally grow in width as the mild summer waves supply the onshore areas with sand and the gentle breezes blow that sand back into the dune fields. During the winter, the processes reverse.

precipitation will easily permeate sand and accumulate within a fresh water zone or freshwater lens beneath the surface of the barrier island. Where this freshwater table intersects the surface of the barrier island, freshwater wetlands may be found in the interdunal depressional areas atop a higher density salt water lens. This interface can be sharp or may grade slowly with depth into salt water in a transition zone discernible by increasing salinity.[4] The project wetlands have formed behind the more active dune fields, in the more stable dune environment where the size and shape of the dunes are less pronounced than those occurring in the frontshore.

The overall land use in the immediate project area consists predominantly of a natural interdunal landscape, where the dune system extends to Privateer Creek, the North Edisto River, and the Atlantic Ocean. As the dune system approaches Privateer Creek, the habitat transitions into a salt marsh community, which then transitions into mudflats, and then the open water. As the dune system approaches the North Edisto River, the habitat transitions into the riparian environment, and then into open water. As the dune system approaches the Atlantic Ocean, the habitat transitions into more pronounced dune fields, which transitions to the ocean. Dominant community species are presented in Table 1.

Table 1: Predominant Habitats on the Project Site

Habitat	Dominant Species
Uplands	*Quercus virginiana, Sabal palmetto, Pinus taeda, Magnolia grandiflora, Morella (Myrica) cerifera*
Riparian	Transitional area species include a mix of both upland and wetland plants.
Wetlands	*Quercus laurifolia, Juncus effusus, Persea borbonia, Acer rubrum, Hydrocotyle umbellate Sabal minor, Salix nigra, Saururus cernuus*

C. Site Characteristics for Project Wetlands

The overall project site consists predominantly of an interdunal environment, with the habitat supporting five freshwater interdunal wetlands (wetlands A2, B, C, D, and E) totaling approximately 13 acres in size.

The wetlands are in close proximity to each other. It is believed that wetlands A2 and B were originally one wetland, which was severed by the placement of a small dirt road. Wetlands A2 and B are connected via overland sheet flow and likely shallow subsurface flow, and are functioning as one wetland. Wetlands B and C are approximately 350 feet apart; wetlands B and D are approximately 200 feet apart; and wetlands D and E are approximately 150 feet apart. Wetlands C and E are the farthest apart, at a distance of approximately 1,500 feet.

[4] Collins, W.H. III, and D.H. Easley. 1999. Fresh-water Lens Formation in an Unconfined Barrier-Island Aquifer. *Journal of the American Water Resources Association* 35(1): 1-21.

The wetlands are also in close proximity to the TNWs. The five wetlands are 100, 210, 300, 600, and 800 feet, respectively, away from the TNW closest to that wetland. The wetlands range from 100 to 1,250 feet away from Privateer Creek, and from 300 to 2,000 feet away from the North Edisto River. The Atlantic Ocean is the TNW furthest away from all the wetlands, ranging from 5,600 to 6,500 feet from the wetlands, and is separated by the most developed and stable dune system. The wetlands' size (total of 13 acres) and proximity to one another and to the TNWs indicates a close physical relationship between the interdunal wetland system and the TNWs.

Interdunal wetlands are typically formed as a result of oceanic processes where the wetlands establish behind relic dune ridges. The project wetlands are bowl shaped features that provide short and long term water storage (ranging from 0.86 to 15.15 acre-feet, assuming a water depth of 2 feet), supporting high diversity and structure (70-90% cover) in the plant community. The soil and biological characteristics of the wetlands are summarized in Table 2. As presented in Table 2, the dominant soils and the wetland species in the system are similar in composition as are the riparian and upland habitats.

Table 2: Summary of Biological Characteristics

Wetland	Size (ac)	Dominant Soils	Dominant Vegetation (top 5 sp)	% Vegetative Cover to Wetland	Riparian Community	Upland Community
A2	0.43	Loamy Fine sand, Listed Crevasse-Dawhoo	*Quercus laurifolia, Juncus effusus, Persea borbonia, Acer rubrum, Hydrocotyle umbellata*	90%	Same as upland and dominant wetland vegetation	*Quercus virginiana, Sabal palmetto, Pinus taeda, Magnolia grandiflora, Morella (Myrica) cerifera*
B	2.41	Loamy Fine Sand Listed Crevasee-Dawhoo	*Quercus laurifolia, Juncus effusus, Persea borbonia, Acer rubrum, Hydrocotyle umbellate*	90 %	Same as upland and dominant wetland vegetation	*Quercus virginiana, Sabal palmetto, Pinus taeda, Magnolia grandiflora, Morella (Myrica) cerifera*
C	0.56	Loamy Fine Sand Listed Crevasse-Dawhoo	*Quercus laurifolia, Juncus effusus, Sabal minor, Acer rubrum, Arundinaria gigantea*	90%	Same as upland and dominant wetland vegetation	*Quercus virginiana, Sabal palmetto, Pinus taeda, Magnolia grandiflora, Morella (Myrica) cerifera*
D	4.38	Loamy Fine Sand Listed Crevasse-Dawhoo	*Juncus effusus, Salix nigra, Saururus cernuus, Quercus laurifolia, Hydrocotyle umbellata*	90 %	Same as upland and dominant wetland vegetation	*Quercus virginiana, Sabal palmetto, Pinus taeda, Magnolia grandiflora, Morella (Myrica) cerifera*
E	5.05	Loamy Fine Sand, Listed Crevasse-Dawhoo & Water	*Juncus effusus, Salix nigra, Saururus cernuus, Quercus laurifolia, Hydrocotyle umbellata*	70 %	Same as upland and dominant wetland vegetation	*Quercus virginiana, Sabal palmetto, Pinus taeda, Magnolia grandiflora, Morella (Myrica) cerifera*

Biodiversity value of a wetland is intimately tied to its position on the landscape with respect to other wetlands, and small wetland systems provide greater biological value for some aquatic species than a large wetland.[5] The project wetlands provide a

[5]Semlitsch, Raymond D. 2000. *Size Does Matter: The Value of Small Isolated Wetlands.* National Wetlands Newsletter. January-February 2000. 3 pp.

structural richness in plant diversity, and due to the close proximity of the wetlands in relation to one another and to the TNWs, the overall biodiversity is high. The integrated habitat provides for basic food, shelter, and reproductive requirements for a number of aquatic related animals. Aquatic organisms are expected to include numerous species of insects, amphibians, reptiles and small mammals. In addition, onsite plants and local animals will provide nesting, roosting and forage opportunities for the following groups of birds: shorebirds, wading and marsh birds, passerines, non-passerines, and birds of prey. As a result of this integrated ecological system, species biodiversity in wildlife, including the avifauna, is also high.

Based on an examination of the physical and biological characteristics of this wetland system, these wetlands are functioning as an integrated interdunal wetland system.

III. Jurisdictional Determination

The five interdunal wetlands in JD 2007-657-1JT are jurisdictional because they are adjacent (as defined at 33 CFR 328.3(c) and 33 CFR 328.3(a)(7)) to Privateer Creek, the North Edisto River and the Atlantic Ocean, all TNWs.

IV. Basis for Determination[6]

EPA and Corps regulations define "waters of the United States" to include wetlands adjacent to other covered waters.[7] The regulations state: "The term adjacent means bordering, contiguous or neighboring. Wetlands separated from other waters of the United States by man-made dikes or barriers, natural river berms, beach dunes, and the like are 'adjacent wetlands.'"[8] The *Rapanos Guidance* states that finding a continuous surface connection is not required to establish adjacency under this definition.[9]

The interdunal wetland system (that includes the five wetlands subject to this JD) is adjacent to Privateer Creek, the North Edisto River, and the Atlantic Ocean. This is based on an examination of a combination of factors, including proximity and hydrologic connection to Privateer Creek and the North Edisto, and the natural interdunal landscape that extends to the Atlantic Ocean.

A. Privateer Creek and North Edisto River

The wetlands in the interdunal wetland system (that includes the five wetlands subject to this JD) are in close proximity to each other and to Privateer Creek and the

[6]The memorandum summarizes the evidence considered by the agencies in reaching this conclusion. Additional information regarding the determination is contained in the administrative record for this action.
[7] 33 C.F.R. 328.3(a)(7).
[8] 33 C.F.R. 328.3(c).
[9] *Rapanos Guid*ance, page 5.

North Edisto River. In addition, the wetland system has a hydrologic connection to Privateer Creek and the North Edisto River.

The wetlands are located between 100 to 1,250 feet from the mean high water (MHW) line of Privateer Creek and 300 to 2,000 feet from the MHW line of the North Edisto River. Topographically, the land slopes across the interdunal habitat from east to northwest (i.e., towards Privateer Creek and the North Edisto River). Under normal precipitation events, two of the wetlands have a discrete surface hydrologic connection to Privateer Creek and its adjacent mudflats/marshlands. The other wetlands have a hydrologic connection to Privateer Creek and the North Edisto River via overland flow during normal precipitation events. It is expected that during smaller events, flow is still to the northwest, but more onsite pooling/ponding would occur due to the microtopic relief created by the interdunal habitat. During extreme events (such as the 100-year storm event), it is expected that flow would migrate from Privateer Creek and the North Edisto River and infiltrate the wetlands. Due to the shape of the wetlands and the position in the landscape, the wetlands provide the potential for approximately 31 acre-feet of short and long-term water storage. Thus, the wetlands also provide floodwater storage benefits by intercepting storm and flood water that would otherwise enter the TNWs.

B. Atlantic Ocean

The interdunal wetland system (that includes the five wetlands subject to this JD) is part of the natural interdunal landscape that extends to the Atlantic Ocean. As discussed in more detail in Section II above, this back dunal zone is generally a more stable environment and becomes less stable as it transitions to the shorefront region near the Atlantic Ocean, which is generally characterized by more pronounced dunal ridges. These ridges transition across the project site and have created interdunal depressional areas, allowing for the formation of the freshwater wetlands onsite. It is also expected that there may be a hydrologic connection via overland flow to the Atlantic Ocean under a 100-year storm event.

V. Conclusion

The agencies have determined that the wetlands for JD# 2007-657-1JT are jurisdictional because they are adjacent (as defined by 33 CFR 328.3(c) and 33 CFR 328(a)(7)) to Privateer Creek, the North Edisto River and the Atlantic Ocean, all TNWs. This determination is based on our finding that all five wetlands subject to this JD are part of an interdunal system that is in close proximity to and has hydrologic connections to Privateer Creek and the North Edisto River, and are part of the natural interdunal landscape that extends to the Atlantic Ocean.

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