STATE OF SOUTH CAROLINA
ADMINISTRATIVE LAW COURT

South Carolina Coastal Conservation League, Petitioner, vs. South Carolina Department of Health and Environmental Control and DeBordieu Colony Community Association, Respondents.	Docket No. 19-ALJ-07-0089-CC **FINAL ORDER**
South Carolina Coastal Conservation League, Petitioner, vs. South Carolina Department of Health and Environmental Control and DeBordieu Colony Community Association, Respondents.	Docket No. 20-ALJ-07-0161-CC

Appearances:

For Petitioner:	Leslie S. Lenhardt, Esq., and Benjamin D. Cunningham, Esq.
For Respondent DCCA:	Tracey C. Green, Esq., J. Joseph Owens, Esq., and Randolph R. Lowell, Esq.
For Respondent DHEC:	Bradley D. Churdar, Esq. and Sallie P. Phelan, Esq.

STATEMENT OF THE CASE

This matter originally came before the South Carolina Administrative Law Court (ALC or Court) pursuant to a Request for Contested Case Hearing filed by Petitioner South Carolina Coastal Conservation League (League) challenging the decision of the South Carolina Department of Health and Environmental Control (Department) to issue Permit 2017-01795 (the Permit) to

Respondent DeBordieu Colony Community Association (DCCA) for beach renourishment and the construction of three groins along a 1.5-mile section of Debidue Island in Georgetown County, South Carolina. This original case, docket number 19-ALJ-07-0089-CC, was consolidated for hearing purposes with another Request for Contested Case filed by the Belle W. Baruch Foundation (Baruch) (docket number 19-ALJ-07-0088-CC) challenging the same permit issued by the Department.

While the litigation was pending in these cases, Baruch and DCCA filed a Joint Motion for Approval of a Settlement Agreement. Baruch and DCCA sought the Court's approval of a settlement agreement modifying Permit No. 2017-01795 in accordance with the agreement. On April 3, 2020, the Court dismissed Baruch's case with prejudice consistent with the Settlement Agreement. The Court also approved the modification of Permit 2017-01795; in particular, Special Condition 22.

On April 15, 2020, consistent with this Court's Order of Dismissal, the Department issued an Amended Permit, which remained identified as permit number 2017-01795. The Department advised that the amendment was made part of the original Permit and was subject to the full terms of the Permit as issued. After this Amended Permit was issued, the League requested a Final Review Conference before the Department's Board, which was denied. The League thereafter filed a second Request for Contested Case to challenge the Amended Permit. This case was assigned docket number 20-ALJ-07-0161-CC and was consolidated with the League's original case pursuant to an Order of Consolidation issued on July 30, 2020.

Accordingly, at the time of the merits hearing in this case, the League's two contested cases challenging the original Permit and the Amended Permit were before the Court. The merits hearing was held on August 24-26, 2020, at the Court's offices in Columbia, South Carolina.

FINDINGS OF FACT

Permit/Amended Permit at Issue

On January 24, 2019, the Department issued Permit 2017-01795 to DCCA to perform beach renourishment and construct three groin structures along a 1.5-mile section of Debidue Island in Georgetown County, South Carolina (the Project). The Permit authorizes two activities to be conducted within the protected critical area. First, the Permit allows DCCA to add "up to 650,000 cubic yards of beach-compatible sand" along approximately 1.5 miles (8,000 feet with 500 to 1,000 feet of tapers) of shoreline along Debidue Island. Second, the Permit authorizes

DCCA to install three permanent, sheet-pile-type groins extending from "300 and 400 feet from the back beach/bulkhead to the low tide line" at the southern end of the Project site. In order to secure these groins, the Permit authorizes armor stone scour aprons along both sides of all three groins at the seaward end of the structures. The apron for each groin will require approximately 1,500 tons of stone placed on 5,600 square feet of marine mattresses. The sheet piles will be made of steel or a composite reinforced fiberglass material and will be capped with concrete or a composite material.

The purpose of the work allowed under the Permit is "to restore the recreational beach, protect infrastructure and homes, reduce potential storm damages, maintain property values and the community tax base, maintain dry beach habitat for shorebirds and sea turtles, reduce renourishment frequency, and provide excess nourishment volume beyond the trapping capacity of each groin so that sand bypassing occurs to the downcoast area and erosion rates are reduced below the background erosion rate of - 8.1 cy/ft/yr for the downcoast area." The groin profile will be constructed to match the native beach slope. The northernmost groin will be placed along the bulkhead/seawall and be 300 feet in length terminating into the bulkhead. The middle groin will be 400 feet in length and will terminate at the southern terminus of the bulkhead. The southernmost groin will be 300 feet in length and be placed approximately twenty-five feet north of the property line between DCCA and Baruch.

The Permit also requires DCCA to comply with sixteen "General Conditions" and twenty-six "Special Conditions." The Special Conditions are Project-specific conditions that take precedence over DCCA's plans submitted with its permit application. Several of the Special Conditions address when construction can be undertaken to avoid disrupting sea turtles during their nesting season. For example, Special Condition 1 prohibits construction between July 1st and October 31st in accordance with the U.S. Fish and Wildlife Service's letter regarding the Project.

Another condition, Special Condition 15, requires that "[a]ccess along the beach in the vicinity of the new groins must be maintained or improved." This condition further provides that "[i]f access is impacted or eliminated, temporary access around or over the groins must be established immediately" and "[w]ithin 30 days of notification from the department, a plan to provide permanent access around or over the groins must be submitted by the entity responsible for the groin construction." The permanent access plan must be implemented within ninety days of the Department's approval of the plan.

Particularly important to this litigation, Special Condition 18 requires DCCA to monitor the Project site. Specifically, DCCA is required to monitor the beach profile, conduct post-storm surveys, conduct bathymetric surveys, take beach sediment samples, take samples from the borrow area (where renourishment sand is harvested), take aerial photographs, monitor compaction of the renourished beach, and monitor escarpment formation. Special Condition 20 provides the schedule for each type of monitoring. Special Condition 22 discusses the actions to be taken should the monitoring required by Special Condition 18 show "an increased erosion rate along the adjacent or downdrift beaches that is attributable to the three new permitted groins." If this type of erosion occurs, Special Condition 22 provides:

> SCDHEC-OCRM will require either that the groins be reconfigured so that the erosion rate on the affected beach does not exceed the historical/background rate, that the groins be removed, and/or that the beach adversely affected by the groins be restored through renourishment. Baseline volume and shoreline position conditions will be based on the pre-project survey conditions. Subsequent analyses of project performance will be made relative to these baseline conditions. Specifically, if the running average erosion rate within the Hobcaw Tract [Baruch's property] from the southernmost groin to 1,600 feet south of the southernmost groin exceeds the historical/background rate of 8.1 cy/ft/yr,[1] mitigation will be required. Mitigation will also be required if the running average erosion rate from 1,600 feet south of the southernmost groin to 4,180 feet south of the southernmost groin exceeds 8.1 cy/ft/yr. The exact form of mitigation required will depend on the location and extent of the adverse impact. When mitigation work is required, it must be completed as soon as possible, normally within three months. The permittee's agent, in a letter dated May 16, 2018, estimates that it would cost approximately $250,000 to reconfigure or remove the groins if required. The Letter of Credit dated August 17, 2018, serves as [DCCA's] commitment to reconfigure groins, remove groins, and/or restore the adversely affected beach through renourishment should it be determined that the three groins contemplated under this permit resulted in increased erosion rates. [DCCA] also implements a Beach Preservation Assessment, which generates funds solely dedicated to beach preservation.

The "trigger point" for mitigation under the original Permit was an erosion rate of - 8.1 cy/ft/yr. This volumetric change rate was developed to exclude the effects of the four beach renourishment projects that have been completed at Debidue Beach to better represent the natural

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[1] Although the Permit appears to refer to the historical background rate as a positive 8.1 cy/ft/yr, which would indicate accretion, it is actually referring to an erosional rate. An erosional rate is usually referred to as a negative rate, as in – 8.1 cy/ft/yr. The Amended Permit, as discussed below, also includes "positive" rates that are actually "negative" rates of erosion. For the purposes of this Order, negative change rates will indicate erosion and positive change rates will indicate accretion.

background erosion rate. Matt Slagel, the Department's Beachfront Permitting Project Manager, explained that when the erosion rate begins to approach - 8.1 cy/ft/yr, then two years before that point DCCA should begin planning for renourishment or some other kind of mitigation. However, this two-year timeline for preparation for mitigation was not specifically included in the Permit.

The Department later amended the Permit in response to the Settlement Agreement reached between DCCA and Baruch. Special Condition 22 was amended as follows:

> 22. If the monitoring data collected according to Special Condition #18 shows an increased erosion rate along the adjacent or downdrift beaches that is attributable to the three new permitted groins, SCDHEC-OCRM will require mitigation as follows:
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> a. that the groins be reconfigured so that the erosion rate on the affected beach does not exceed the background rate of .75 acre per year or 6.00 cy/ft/yr, (as set forth below in paragraphs 1 and 2);
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> b. that the groins be removed; and/or
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> c. that the beach adversely affected by the groins be restored through renourishment. Baseline volume and shoreline position conditions will be based on the pre-project survey conditions. Subsequent analyses of project performance will be made relative to these baseline conditions.
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> 1. Specifically, if the average erosion area for two consecutive years above Mean High Water (MHW) within the Hobcaw Tract from the southernmost groin to 4,180 feet south of the southernmost groin exceeds .75 acre per year, mitigation will be required. For purposes of this provision, MHW is defined as 2.05' NAVD '88 and the initial baseline condition for MHW will be determined by a survey to be taken within one month prior to the beginning of Project construction. After completion of the Project, MHW will be determined annually by a survey taken in May of each year.
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> 2. Mitigation will also be required if the running average erosion rate within the Hobcaw Tract from the southernmost groin to 1,600 feet south of the southernmost groin exceeds the rate of 6.00 cy/ft/yr. Mitigation will also be required if the running average erosion rate from 1,600 feet south of the southernmost groin to 4,180 feet south of the southernmost groin exceeds the rate of 6.00 cy/ft/yr.
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> 3. The exact form of mitigation required will depend on the location and extent of the adverse impact. When mitigation work is required, it must be completed as soon as possible, normally within three months.
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> 4. DCCA has obtained a commitment for a letter of credit in the amount of $1,000,000, which shall be in place prior to the commencement of construction. DCCA has provided

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> documentation regarding the beach fund approved by its members to pay for this installation of groins and renourishment and for any future work that may be required on the Debidue or Hobcaw beaches. This community approval is for 17 years. After paying for the project, DCCA will accumulate funds over the following 12 years, estimated to be approximately $10-$12 million (based on current estimates for the project cost). These funds will be available for additional beach renourishment and/or groin reconfiguration or removal if needed. These funds are in addition to the $1 million Letter of Credit.

The effect of the amendment was to lower the trigger point for mitigation from - 8.1 cy/ft/yr to - 6.0 cy/ft/yr. In addition to this volumetric trigger, the amendment added a land loss trigger above mean high water, which is located in subsection (a) of amended Special Condition 22. This land loss trigger rate is 0.75 acres per year. A land loss of 0.75 acre loosely equates to a shoreline change rate of – 7 to - 8 ft/yr. Having two mitigation trigger rates instead of one provides increased protection for the downdrift area because it reduces the chances that the need for mitigation will not be detected. For this reason, the Amended Permit is more robust than others the Department has issued for groins on Hunting Island and Folly Beach, which vaguely instructed mitigation would be required if the historic erosion rate increased but did not set a number or trigger rate. The amendment also shifted the southernmost groin twenty-five feet north of the shared property line with Baruch and about forty-five feet west. Finally, the amendment incorporated a new letter of credit from DCCA committing $1 million in funds for mitigation and access to DCCA's Beach Preservation Fund in contrast to its commitment of $500,000 in the original Permit.

History of DeBordieu Colony

The development of DeBordieu Colony on Debidue Island began in the 1970s. In 1981, a bulkhead (seawall) was built to address erosion. The bulkhead failed during Hurricane Hugo in 1989 and was thereafter rebuilt. The current bulkhead is approximately 4,500 feet long and terminates about 1,000 feet north of the last house in DeBordieu Colony. During the initial development of the area, no houses were built south of the bulkhead; however, when a new developer took over in 1985, several oceanfront homes were built south of the bulkhead in a section of the community called Ocean Green. Due to on-going erosion, DeBordieu Colony has conducted several beach renourishment projects over the years. Specifically, renourishment projects took place in 1990, 1998, 2006, and 2015, or about every eight to nine years. Each attempt at renourishment has required greater and greater amounts of sand to protect the beach. The 1990

and 1998 projects were smaller and placed around 100,000 to 200,000 cubic yards on the beach. The 2006 and 2015 projects were significantly larger at around 500,000 to 600,000 cubic yards each and required sand to be dredged from offshore and pumped onto the shoreline. The current Project intends to place the largest amount of sand to date, 650,000 cubic yards, on the beach.

Morphology of Debidue Island

Debidue Island is a barrier island along the coast of South Carolina. Barrier islands are dynamic places that often change rapidly; they are shaped by tides and storms. Debidue Island is bookended by two inlets, Pawley's Inlet to the north and North Inlet to the south. Sand generally migrates from the north to south along the South Carolina coast, although inlets can change and sometimes reverse the movement of sand in areas proximate to them. North Inlet is close enough to influence the erosional patterns at the Project area but not close enough to change the general migration pattern of sand from north to south in the project area.

Historic data from Debidue Island evidences an increasing erosion rate from north end of the island to the south end of the island. The erosion in the Project area is influenced by the closure in the 1930s of another inlet that used to exist on Baruch's Hobcaw tract just south of the property line between DCCA and Baruch. Due to the changing morphology associated with the closing of the old inlet on the Hobcaw Tract and the continued existence and dynamics of North Inlet further south, Debidue Beach is unstable and not in equilibrium. A beach that is in equilibrium is reflected by an arcuate beach that forms an arc—or C-shape—between the inlets or other anchor points along the coast. In contrast, the shoreline of a coastal area that is not in equilibrium tends to have an S-shape, with part of the beach forming an arc and the other part extending into the ocean in an effort to reach an equilibrium shape. The northern part of Debidue Island is an arcuate shape anchored by Pawley's Inlet in the north and extending to the northern part of DeBordieu Colony's property, but the southern part where the Project will be located is more of an S-shape. This particular set of morphological circumstances where the Project is proposed contributes to the higher rate of erosion at the south end of Debidue Island compared to the north end. The proposed groins will, in effect, create a new anchor point to form the arcuate beach shape on the southern part of Debidue Island and allow that shoreline to approach equilibration.

Erosion Rate at the Project Area

The parties disagree about whether the background erosion rate at Project area is "high" for the purpose of installing the groins and introduced the testimony of experts on the subject. The

background erosion rate is the erosion rate that would accrue based on existing morphological conditions without the influence of erosional structures or renourishments.

Dr. Timothy William Kana, the President of Coastal Scient & Engineering (CSE), gave expert testimony on the erosion rates at Debidue Island.[2] He was qualified as an expert in beach erosion, coastal geomorphology and processes, sediment buckets and transport, beach restoration, planning design and implementation, and tidal inlet sediment dynamics. Dr. Kana has studied the beachfront of Debidue Island off and on since 1974. He published a thesis on coastal processes on Debidue Beach in the 1970s, participated in consulting with a firm on an assessment and restoration plans for Debidue Beach in the 1980s, and in the 1990s helped design restoration projects and renourishment for the beach. Therefore, Dr. Kana has extensive experience in the area at issue. The Court found him to be highly credible and his testimony was persuasive.

In Dr. Kana's opinion, volumetric measures of change in the amount of sand on the beach are more accurate than shoreline change rates because volumetric measurements are better at removing "noise" in the shoreline change system caused by tides or other influences. For example, because DeBordieu Colony has a 4,500 ft bulkhead in front of part of its property, the shoreline cannot change and move inland; however, that does not mean erosion stops. Even with the bulkhead in place, erosion still occurs, it is just more likely to be reflected in a volumetric change in sand rather than a shoreline change. Nevertheless, for long-term, historical analyses of erosion, shoreline change rates are the most available measure because cross-sectional beach profiles used for volumetric measures did not become readily available until the 1990s when the Department installed several "monuments" on the beaches to monitor and measure changes more precisely.

To evaluate the shoreline and volumetric changes at the Project area, Dr. Kana and his team looked at shoreline change from the 1930s to the 1990s using aerial photography and data on beach cross sections collected from the 1990s and forward. This practice is consistent with how experts in his field evaluate erosion rates and shoreline changes. Dr. Kana also consulted studies by the University of South Carolina and the Army Corps of Engineers, his own firm's historic work in the area, the Department's estimated erosion rates, and a study performed by Applied Technology Management (ATM), another coastal engineering firm that analyzed a prior renourishment project on Debidue Beach . The Court finds the methodology used by Dr. Kana and CSE in estimating

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[2] Dr. Kana's firm, CSE, developed the proposed Project before the Court.

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the background erosion rate at DeBordieu Colony is a well-accepted method in the field of coastal morphology.

For the purposes of discussing shoreline change on Debidue Island, the island's coastline was broken into four Reaches. Reaches 1 and 2 comprise the northern parts of the island, Reach 3 is the Project area, and Reach 4 is comprised of the Hobcaw Tract. It is undisputed that the erosion rate increases from Reach 1 to Reach 4. Dr. Kana testified the average erosion rate for Reach 3, where the Project will be located, is - 4.2 cy/ft/yr (volumetric change rate), which equates to approximately - 5.5 ft/yr (linear shoreline change rate). Notably, the rate of - 4.2 cy/ft/yr is an average for all of Reach 3. Furthermore, the south end of Reach 3 is eroding at a much more rapid rate than the northern end of Reach 3 and its rate is likely to be closer to CSE's estimated erosion rate for Hobcaw tract of - 8.1 cy/ft/yr or approximately - 10.5 ft/yr. In comparison, the northern part of the island has an erosion rate of between 1.4 cy/ft/yr and - 0.4 cy/ft/yr.

Dr. Kana classified an erosion rate of - 4.2cy/ft/yr as a moderate to high erosional rate.[3] In Dr. Kana's opinion, whether an erosion rate is high or not based upon the context of the area at issue. He explained that although some other South Carolina beaches are eroding at a much higher rate of - 20 ft/yr, Debidue's rate is also high because of the gradient of the shoreline change rate from the north to the south end of the island. The change in gradient is not only reflected by CSE's estimated shoreline change rates for the Reaches, but also by the Department's baseline and setback line. The baseline[4] and setback line[5] diverge as they proceed south, growing to three to

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[3] Dr. Haiqing Liu Kaczkowski, the principal engineer at CSE, also classified the erosional rate as "high." Dr. Kaczkowski was qualified as an expert in modeling studies and evaluations of coastal engineering projects, coastal erosion assessment and beach restoration, and design and engineering of erosion control structures. Although she classified the rate as high, she also opined that the threshold rate for when a hard structure is needed to control erosion is an average erosion rate of – 5 cy/ft/yr. However, Dr. Kaczkowski did not state whether she considered – 5 cy/ft/yr to be a threshold for what is considered moderate versus high.

[4] The baseline is established in different ways based upon the nature of the area. For a standard erosion zone, it is established "at the location of the crest of the primary oceanfront sand dune in that zone." S.C. Code Ann. § 48-39-280(a)(1); *see also* S.C. Code Ann. Regs. 30-1(26). Furthermore, "[i]n a standard erosion zone in which the shoreline has been altered naturally or artificially by the construction of erosion control devices, the baselines must be established by the Department using the best scientific and historical data, as where the crest of the primary ocean front sand dune for that zone would be located if the shoreline had not been altered." *Id.*

[5] The setback line is "the line landward of the baseline that is established at a distance which is forty times the average annual erosion rate as determined by historical and other scientific means and adopted by the Department in the State Comprehensive Beach Management Plan. However, all setback lines shall be established no less than twenty feet landward of the baseline, even in cases where the shoreline has been stable or has experienced net accretion over the past forty years." S.C. Code Ann. Regs. 30-1(46); *see also* S.C. Code Ann. § 48-39-280(B).

four times further apart than they are on the northern part of Debidue Beach , which means that the erosion rate is increasing toward the southern end of the beach.

Importantly, in estimating the background erosion rate, Dr. Kana and his team excluded data that was collected soon after renourishments at Debidue Island because renourishment events can artificially raise the background erosion rate. The sudden large increase of sand after a renourishment provides more sand for the system to move more quickly and has driven the erosion rate up as high as - 30 ft/yr in the past, which is much higher than the background erosion rate before renourishment. Erosion rates slowly stabilize after renourishment events and come into an equilibrium. Although Dr. Kana did not use data from renourishments to establish the background erosion rate, he reviewed the prior effects of renourishments on Debidue Beach. Dr. Kana opined that CSE's analysis with respect to the prior renourishment projects demonstrates that there is less erosion on the Hobcaw Tract after renourishments and there is some net gain on Debidue Beach, but this gain is at a much lower rate than is desirable. In other words, frequent nourishment has been required to keep pace with erosion along Debidue Beach.

Dr. Kana's classification of the erosion rate as high is consistent with the Department's historic classification of erosion rates. The Department has historically considered any erosion rate above - 3 ft/yr to be high since the Coastal Council (DHEC-OCRM's predecessor) was created.[6] This threshold for what constitutes a high erosion rate is based on an analysis of shoreline changes across the state, both erosional and accretional, using an analysis of its statewide network of approximately 500 beach monuments and prior studies of erosion in South Carolina. The - 3 ft/yr rate does not necessarily represent the mean erosion rate because the Department finds the range to be more probative than the mean. Nevertheless, during rebuttal, Mr. Slagel explained that, based on the Department's most recent statewide shoreline change rate calculations from 2017, the average shoreline change rate for the State was - 1.5 ft/yr. He also testified that the median shoreline change rate for the State was - 0.11 feet per year. Accordingly, the Department's classification of an erosion rate above - 3 ft/yr as high is supported by data on the State mean.

In contrast, the League introduced the testimony of Dr. Robert Young, who was qualified as an expert in the fields of coastal geology, coastal processes, and coastal zone management

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[6] The Department mostly relies on shoreline change rates because this data goes back hundreds of years to the late 1800s and provides a big-picture view of how the shoreline has changed over time. In contrast, the Department only has about thirty years' worth of volumetric data using the monuments.

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policies. In Dr. Young's opinion, Reach 3 does not have a high erosion rate. Dr. Young did not quarrel with Dr. Kana's proposed erosion rate; rather, he believes a shoreline change rate of - 4.2 cy/ft/yr or - 5.5 ft/yr is moderate erosion rate in South Carolina. His opinion on what is a low, medium, or high rate is based upon his historic knowledge, his observation of shorelines for high erosion indicators like trees falling into the ocean, and his qualitative experience of 25-30 years in the State of South Carolina. However, he had not conducted a quantitative statewide erosion assessment. Rather, Dr. Young relied, in part, on a report commissioned by the Department and authored by Chester Jackson (the Jackson Report)[7]. According to Dr. Young, the Jackson Report estimates the mean erosion rate in South Carolina to be between - 6 to - 7 ft/yr, including both accretionary shorelines and erosional shorelines. Dr. Young essentially equated the mean shoreline change rate with moderate erosion, suggesting that for an erosional rate to be "high," it would need to be above the mean. Dr. Young also relied on the Department's Coastal Hazard Vulnerability Assessment website, which reflected that DeBordieu Colony was an area of moderate to low erosion at – 6-7 ft/yr. He stated this website relied on data from the Jackson Report.

However, I find the Jackson Report is not as reliable or probative as other evidence introduced in this case for a several reasons. First, the rate cited by Dr. Young in the Jackson Report was the mean shoreline change rate for erosional areas only. The Jackson Report provided an overall mean rate for erosional and accretional areas that is approximately - 0.14 m/yr or - 0.46 ft/yr. Second, the testimony indicated the Jackson Report likely did not filter out the renourishment events when establishing shoreline changes for the report. Like Dr. Kana, Dr. Young agreed that looking at erosion immediately after a renourishment can be misleading and give a falsely high rate because the system is out of equilibrium for a while. Additionally, the Jackson Report only used data sets from three "shoreline years" to conduct an end-point analysis: one from the 1800s, one from the 1930s, and one from the 2000s, whereas the Department calculates shorelines rates using seven to nine shoreline years for a more accurate data set. Lastly, because the Department's Coastal Hazard Vulnerability Assessment website suffers from the same limitations as the Jackson

[7] This report is entitled "Mapping Coastal Erosion Hazards Along Sheltered Coastlines in South Carolina 1849 to 2015."

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Report, I do not find it to be reliable either. In sum, I found Dr. Young's testimony to be less credible than the opposing evidence.[8]

Overall, I find the preponderance of the evidence shows the erosion rate at the Project area is high. In particular, I find the Department's long-standing interpretation of what constitutes a "high" erosion rate is significantly persuasive. The Department has historically considered an erosion rate over - 3 ft/yr to be high. Although the Department's shoreline rate change threshold of -3 cy/ft/yr is not recorded in any statute or regulation, both Mr. Slagel and the Department's former employee of many years, William Eiser, recognized its existence. The Department's rate represents the threshold at which point moderate erosion changes to high erosion, and the erosion rate at the Project area exceeds this threshold. Therefore, the erosion rate at the Project area is high.[9] Moreover, Dr. Kana's opinion that a rate of -4.2cy/ft/yr or -5.5 ft/yr is moderate to high is consistent with the Department's interpretation. And, - 5.5 ft/yr is much greater than the average shoreline change rate for the State in 2017 as calculated by Mr. Slagel, which was - 1.5 ft/yr. It is also greater than the median shoreline change rate for 2017, which was - 0.11 ft/yr.

Background Rate of the Hobcaw Tract

In order to protect the downdrift beach, the Hobcaw Tract, from downdrift effects, the Permit and Amended Permit includes mitigation trigger rates. These trigger rates are based upon the estimated background erosion rate for the Hobcaw Tract so that mitigation can be implemented when the monitored erosion rate at Hobcaw begins to exceed the background erosion rate. The Amended Permit requires monitoring for ten years initially. The evidence shows the background erosion rate for the Hobcaw Tract, or Reach 4, is estimated to be - 8.1 cy/ft/yr or - 10.5 ft/yr.[10]

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[8] I also recognize that Regulation 30-21 of the South Carolina Code of Regulations states:

> Debidue is a private beach community. Access is controlled by a security gate. The entire beach is developed, and public access is nonexistent. The island is highly erosional in areas.

S.C. Code Ann. Regs. 30-21(D)(5)(b). However, this assessment of Debidue Island is discussed in the context of evaluating public access for the purpose of the State Beachfront Management Plan and does not specify which areas of the island are "highly erosional." *Id.* Therefore, I do not find it to be very probative.

[9] The League noted the erosion rates at the Project are not comparable to the erosion rates at Hunting Island or Folly Beach, which have erosion rates of approximately – 15 to - 20 ft/yr. However, Hunting Island and Folly Beach represent some of the highest erosion rates in the entire State. Moreover, the Court does not find that, for an erosion rate to be considered high, it must represent the extreme end of the erosional spectrum like Hunting Island or Folly Beach.

[10] The League did not express an opinion about what would constitute an adequate monitoring program.

Downdrift Impact

Purpose and Function of Groins

A groin is a "hard"[11] erosion control structure that is placed on the beach to reduce erosion. Regulation 30-1(26) defines a groin as follows:

> Groin - a structure designed to stabilize a beach by trapping littoral drift. Groins are usually perpendicular to the shore and extend from the shoreline into the water far enough to accomplish their purpose. Groins are narrow and vary in length from less than one hundred feet to several hundred feet. Groin fields are a series of two or more groins which, because of their proximity to each other, have overlapping areas of influence. Consequently, the entire groin field must be considered as one system in order to accurately analyze beach response.

S.C. Code Ann. Regs. 30-1(26) (2012). The function of a groin is to reduce the flow of sand along the shore (littoral drift) and retain some of that sand on the updrift side of the groin. In South Carolina, the longshore current carries sand along the shore and generally moves sand from north to south. Therefore, to trap sand on the updrift side of a groin, the groin must be placed perpendicular to the longshore sediment current. These structures are usually viable for decades.

In this case, the three proposed groins are designed to trap sand on the critically eroding part of Debidue Beach and thereby slow the rate of erosion in this area. The groins will be low-profile groins that follow the natural slope or contour of the beach. They are estimated to trap between 50,000 to 75,000 cubic yards of sand (trapping capacity) upon full equilibrium. DCCA plans to renourish the beach before installing the groins to create a platform upon which to build the groins.

For a period of time after the groins are installed, they will not be visible because the renourishment will cover them with about three times more sand than the trapping capacity of the groins. In other words, more sand than the groins can hold will be on the beach, which will allow the excess sand to erode and move naturally down the shore with the longshore current while the groins remained covered. However, eventually the excess sand will erode and expose portions of the groins. The groins may be exposed from less than a foot to three to four feet in some areas, mostly in the front beach. The exposure of the groins may require persons walking on the beach to hop over the structures in certain areas, but the groins should remain covered and freely passable along the back beach.

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[11] In contrast, renourishment is a "soft" solution to erosion.

Initially, the excess sand from the renourishment will prevent the groins from having the effect of withholding sand from the downdrift beach. In fact, the downdrift beach—the Hobcaw Tract—is likely to initially receive more sand than it would in the absence of a renourishment. Indeed, Dr. Kana opined that in the first five years after nourishment Hobcaw will benefit from the excess sand from the renourishment. However, once the excess sand is eroded, the groins' function to trap sand on the updrift side will begin to affect the downdrift beach. Specifically, because not as much sand is reaching the downdrift side to nourish it, the groin can exacerbate erosion on the downdrift side.

Nevertheless, the effect of a groin or groins on the downdrift side can be mitigated. DCCA proposes to initially mitigate the impact in this case by renourishing the beach when the groins are installed. Dr. Kana and Dr. Young opined the amount of the renourishment in this case will exceed the traffic capacity of the three groins in the initial years. Additionally, DCCA will install semi-permeable groins that will allow some flow of sand around and over the groins. However, eventually, despite the groins' semi-permeability, the groins will reach their trapping capacity and the excess sand from the renourishment will have been eroded with the result that, without further renourishment, erosion on the downdrift side of the groins will be exacerbated. Therefore, once the groins reach their trapping capacity and erosion is exacerbated, further mitigation through renourishment will be needed. Mr. Slagel explained that the volumetric mitigation trigger should catch this point and trigger the proper mitigation.

Although the groins will require further renourishment eventually, Dr. Kana estimated installing the groins would result in the renourishment lasting twice as long as a renourishment conducted without them. Thus, instillation of the groins would reduce the frequency of renourishments to approximately every twelve years.

Downdrift Impact Analysis

If left unchecked, groins will eventually cause a downdrift impact unless further renourishment is conducted in the future to supply more sand to the system. However, modeling analyses can help predict the extent of the impact and what designs may lessen the impact. In this case, CSE created a downdrift analysis for DCCA to show the impact of the groins on the downdrift side of the groins. Dr. Kaczkowski, who supervises the engineering activities at CSE, including modeling erosion and engineering design, explained she used two modeling programs, Genesis and Delft3D, to model downdrift impacts of the proposed groins. Both models are well-recognized

and used in her profession. Delft3D is a three-dimensional model used to evaluate the hydrodynamics and the morphological trend of the identified area. Genesis, which is approved by the Army Corps of Engineers, is a one-dimensional model that requires less data and, therefore, runs faster than Delft3D. Although the Delft 3D model has the benefit of modeling the coastal area in three dimensions, it takes a very long time to run due to all of the data that must be processed. Accordingly, Dr. Kaczkowski used Delft 3D to simulate one year of conditions with the groins in place, and used Genesis to simulate twenty-seven years of the impact that renourishment will have on the downcoast properties

Dr. Young rendered no opinion with respect to CSE's use of Delft3D, but stated Genesis was not appropriate to use in areas like the Project area where inlets complicate shoreline changes. Dr. Kaczkowski conceded Genesis cannot handle an inlet feature and to compensate for Genesis's inability to model inlets, she excluded data from the inlets surrounding the project area (Pawley's Inlet and North Inlet) when running this model. Dr. Kaczkowski concluded overall that Genesis shows that the proposed renourishment will result in a positive downdrift impact, and this positive impact will more than compensate for the adverse impact caused by the three proposed groins.

Furthermore, using Delft3D, Dr. Kaczkowski was able to reproduce the coastal dynamics of the Project Area. When using Delft3D, wave input[12] is important, and CSE used a gauge seventeen miles offshore and then extended the computational model domain to where the wave station is located.[13] The wave data from the last thirty-five years was schematized, or classified, into different groups based on wave characteristics and used as a model input.[14] The Delft3D results reasonably reflected the trend of erosion in the Project area, especially with respect to the areas of interest in Reaches 3 and 4, and also reflected that, as occurs naturally, the erosion rate increases from north to south on Debidue Island.

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[12] Dr. Kaczkowski stated that CS&E considered two sources of wave data, Wave Information Study (WIS) and Wavewatch II, and that the use of both of these sources is standard in her profession. She ultimately selected WIS for its analysis because that data set generated a higher level of erosion and, thus, was more conservative in that it would overestimate the erosional impact of the groins for purposes of analyzing the downcoast impact.

[13] Dr. Kaczkowski acknowledged that using a gauge located seventeen miles offshore could introduce some imprecision into the modeling results but testified that it did not here because the computational domain was extended to the gauge. She testified that the gauge is not an actual physical gauge but output from a test model that shows the wave history over the last thirty-five years.

[14] Coastal challenged the schematization of the data as excluding some data, but Dr. Kaczkowski testified that all the main wave data is included and only about 0.1% of the wave data is excluded.

Additionally, Dr. Kaczkowski explained using a simulation of "increased bed level" groins best reflected the low-profile groins proposed for the Project, and this simulation showed the impact of the groins would extend approximately 1,500 feet south of the last groin. Delft3D was also used to determine the sand velocity in the Project Area. Determining sand velocity is important because the higher the velocity, the greater the likelihood of localized erosion occurring in the Project area. Based on the modeling results, the three groins will accumulate sand and downcoast erosion ultimately will increase, but the impact of the groins will be limited to the area 1,500 feet south of the last groin. Moreover, the erosional impact of the groins will be much less than the positive impact of the nourishment, and the combined impact of the groins and nourishment will result in a fifty percent reduction in the historic erosion rate.

I find Dr. Kaczkowski's testimony to be very credible. In fact, Dr. Kana explained the actual estimates made by CSE were more conservative than the modeling estimates of downcoast impacts. CSE prepared sand budgets based on a background erosion rate at Hobcaw of - 8.1 cy/ft/yr, which equates to losing about 34,000 cubic yards of sand annually. With the Project, however, Hobcaw is expected to lose only approximately 20,000 cubic yards of sand annually over the ten years after completion of the Project. I thus conclude the installation of the groins will affect approximately 1,500 feet of shoreline south of the southernmost groin. Furthermore, with the addition of the renourishment, the net result of the Project will be an overall reduction in the historic erosion rate. Indeed, Hobcaw will receive a benefit from the Project, and is unlikely it will not suffer an overall detrimental impact.

Baruch's Downdrift Property

The Baruch property not only includes the Hobcaw Tract; it also includes an 18,000-acre National Estuarine Research Reserve (NERR) also known as the Baruch Institute for Marine Science, which is managed by the University of South Carolina. The NERR is one of twenty-eight similarly designated and protected areas along the east and west coast of the United States that are administered by the National Oceanic and Atmospheric Association (NOAA). Their mission is to protect and study estuaries to support coastal management through scientific research and public education.

The Department received some comment letters, including a letter from the National Marine Fisheries Service, evidencing a concern about the downdrift effect of the groins on the Baruch property and the NERR. However, the evidence reflects the effects of the groins will be

limited to approximately 1,500 feet south of the southernmost groin and the mouth of the inlet where the NERR is located is over two miles south of the groin. Therefore, I find the installation of the groins will not directly affect the NERR.

Threaten Existing Development

There are no guidelines for determining when a structure is "threatened." The Department has inferred that the threshold for when a structure is threatened must be less than a structure that is in "imminent danger," which is defined as a structure being twenty feet from erosion. S.C. Regs. Ann. 30-15(H) ("A structure is determined to be in imminent danger when the erosion comes within twenty feet of that structure."). The Department also exercises its discretion as to whether a structure is threatened, and it does not require that a minimum number of structures be threatened before a groin may be considered. In exercising its discretion, the Department does not necessarily require structures to be threatened 365 days a year; rather, they should have a history of repeatedly being threatened over time.

The Department determined that approximately six homes south of the bulkhead and twelve homes landward of the bulkhead are threatened at the Project. Interestingly, the League's own Rule 30(B)(6) witness, Ms. Pate, personally believes homes along Debidue Beach are threatened. She sent an email to her colleagues at the League in which she observed the houses behind the seawall and along the southern end of Debidue Beach were "severely threatened." She explained that a storm like Dorian results in the ocean coming very close to the front door of these houses.

I find that erosion is threatening existing development at DeBordieu Colony. Homes, particularly at the southern end of the bulkhead, are mere feet from the bulkhead and photographic and video evidence of the site in 2019 show the bulkhead is currently being compromised because water is washing over the bulkhead and eroding the sediment behind it.[15] Most recently, during Hurricane Isaias, water overtopped the seawall and eroded areas behind it. When the waves overtop the wall, they threaten to flood the homes behind the wall and destabilize them. Additionally, Mr. Eiser has observed the vegetation line is landward of some of the houses, which

[15] DHEC Exhibit 31 includes several photos taken on September 18, 2019, that show evidence of waves cresting over the bulkhead in some areas and coming within several feet of houses along the beach or bulkhead. Mr. Slagel testified he took these while Hurricane Humberto was a category 1 storm off the shore of South Carolina although it never actually threatened the State. DHEC Exhibit 32 also shows a video of waves cresting over the bulkhead and washing out the area behind it within close proximity to the southernmost structure behind the bulkhead.

is an indicator of how far ocean water has extended or can extend. Indeed, some homes along the bulkhead are oceanward of both the Department's baseline and setback line. Moreover, although water does not wash over the bulkhead every day, overtopping is likely to occur during storm events that are not necessarily hurricanes. Nevertheless, regardless of storms or tides, the testimony and evidence show erosion has caused the bulkhead to be exposed on a regular basis, the beach is impassible in front of it at high tide, and the lack of dry beach in front of the bulkhead undermines its stability.[16]

Currently, the bulkhead remains functionally intact, but its longevity will be reduced unless action is taken to better protect it. Dr. Young conceded that if a renourishment is not completed, the bulkhead is likely to fail within ten years. Still, in Dr. Young's opinion, erosion is not threatening existing development at DeBordieu. Although he acknowledged "a little bit of water" comes over the bulkhead, he observed that none of the houses along Debidue Beach are falling into the sea.[17] I find that a house does not have to be falling into the ocean to be threatened. Indeed, if a house is falling into the sea, it is no longer threatened by erosion, it is being actively destroyed by erosion—its destruction is imminent.

Financial Commitment

The Amended Permit documents DCCA's new letter of credit committing $1 million in funds for mitigation in contrast to its commitment of $500,000 in the original Permit. According to Blanch Brown, the General Manager of DCCA, this letter of credit confirms DCCA can cover $1 million in costs associated with any remediation necessary as a result of mitigation for the groin impact—either reconstructing or removing the groins and renourishment an impacted beach. The Department found both amounts to be sufficient based upon different engineering estimates submitted in association with the permit showing the cost to remove the groins would likely range

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[16] Mr. Slagel conducted two site visits: one in June 2018 and one in November 2018. The purpose of the visits was to document site conditions during June when weather conditions are calmer and during November when they are stormier. In June, Mr. Slagel observed that there was not dry sand beach in front of the seawall. In November, he observed less beach in front of the bulkhead and dune that had been located just south of the bulkhead in June was cut in half by erosion. Mr. Slagel noted the southernmost property was very close to the beach with "almost no protection."

[17] Dr. Young opined that to be threatened, a structure would need to be within a distance of ten times the annual erosion rate as measured from the mean high tide line. However, that opinion was not based upon any compelling statutory or regulatory authority but rather his opinion to how the current law should be applied. Moreover, he did not offer an opinion on whether the structures behind DeBordieu fit his definition of threatened or not. I did not find his testimony to be persuasive.

between $250,000 to $435,000. Notably, these estimates were based upon removal of the groins only and not any renourishment that might be required following that removal.

DCCA also maintains a Beach Preservation Fund, which contains funds to cover the cost of beach maintenance and restoration at DeBordieu Colony. It is a annually funded account that started in 2017 and is projected to go through 2033. And, as incorporated into the Amended Permit:

> After paying for the project, DCCA will accumulate funds over the following 12 years, estimated to be approximately $10-$12 million (based on current estimates for the project cost). These funds will be available for additional beach renourishment and/or groin reconfiguration or removal if needed. These funds are in addition to the $1 million Letter of Credit.

Dr. Young opined the $1 million commitment was not sufficient because mitigation would require more than that amount to mobilize sand with dredges much less remove groins in the process as well. However, Dr. Young acknowledged that he has no experience with groin removal or the project costs associated with them.

In contrast, Dr. Kana's testimony was more persuasive on this point. Dr. Kana testified that, based on a general estimate provided by a contractor who installs groins, the three groins could be removed for approximately $435,000. Furthermore, although Dr. Kana has not been personally involved in completely removing groins, CSE has been involved with pulling groins up and repositioning them during the construction and installation process. Dr. Kana opined that, after watching the groin construction at Hunting Island and Folly Beach, the process of demolishing the work would be fairly straightforward. In fact, the process would be facilitated by the use of the steel sheet piles, which can be removed relatively easily. Additionally, the rock from the scour aprons can be removed by large track hoes. Thus, Dr. Kana believed that the removal could be accomplished for less than $435,000.

Overall, I find the League failed to show by a preponderance of the evidence that DCCA's financial commitment is insufficient to cover the costs of mitigation and/or groin removal. Beyond speculation, the League presented no evidence to show that the cost of removing the groins and any necessary renourishment beyond that already contemplated by DeBordieu Colony would exceed the available funds.[18]

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[18] I find Dr. Kana's testimony more persuasive on this point given his experience with projects like the one at issue in this case.

Alternatives

As part of its permit application, DCCA submitted a thirty-year plan CSE created for DCCA entitled: Beach Erosion Management Alternatives, 30-Year Plan, DeBordieu Colony, South Carolina (the Plan). This Plan was developed to help DCCA evaluate how to best manage Debidue's beach over the next thirty years. The Plan ultimately recommended renourishment with the installation of three groins. The alternative of constructing a single groin at the southern end of Debidue Beach was considered but rejected because of the length required for a single groin to accomplish its intended purposes. Similarly, constructing two groins was rejected as an option because of the length that would be required for the groins to accomplish their objective.[19]

Mr. Slagel explained the Department also considered the alternative of renourishment without any groins and how this would affect sand transport. However, the Department, as does this Court, recognized that DCCA has no obligation to continue renourishing the beaches in the absence of groins. But with the groins, DCCA would have an obligation under the permit to renourish or conduct mitigation based upon the triggers. Furthermore, clearly groins can extend the life of a beach and therefore reduce the frequency of renourishments and the disruptions that they cause cumulatively over time. Reduced disturbances to the beach and borrow areas can positively affect the environment and wildlife compared to more frequent renourishments. It also limits the disturbance of the use of the beach by the public. I thus conclude the proposed design involving three groins accompanied by a renourishment best accomplish the goal of preventing erosion for a longer period of time with less long-term impact to the environment as long as they are renourished when appropriate under the conditions of the Permit/Amended Permit.

Value and Enjoyment

Several members of the League who are part-time or full-time residents of DeBordieu Colony expressed concerns about their use and enjoyment of the beach after the groins are installed. These residents walk, bike, and otherwise recreate on the beach. For example, Erin Pate, formerly the League's North Coast Office Director, is a resident of DeBordieu Colony and visits Debidue Beach frequently. She and her family bike and walk on the beach, and they use the beach area where the proposed groins would be located. Ms. Pate is concerned that the groins will make

[19] The three-groin design, which includes less lengthy groin, will reduce the downdrift impacts compared to the impact that would be expected from one or two longer groins.

walking or biking on the beach "nearly, if not completely, impossible." She is concerned about losing access to a natural, wide beach, which she believes is an asset that contributes to property values. However, she has found the beach in front of the bulkhead to be impassible at high tide in front of the bulkhead despite "a great deal of accretion this year." Some other residents are concerned the groins will create the potential for injury and drowning, or otherwise present a hazard for which DCCA will be liable.[20]

In terms of whether the groins will increase the potential for injury or drowning, no factual evidence was presented to support this concern, and I therefore I cannot make such a finding. Similarly, the evidence did not support Ms. Pate's opinion that groins will lower property values. Overall, the primary concern expressed about the installation of the groins was their effect on the useability of the beach for walking, biking, and other forms of recreation. Initially, useability should not be impeded by the groins. In fact, access and usability will be increased because the beach will be restored in front of the seawall, which was previously impassible at high tide and restricted residents' ability to walk on the beach. Furthermore, the amount of sand deposited in the renourishment will completely cover the groins at first. However, the groins will eventually be uncovered mainly across the front beach and could force some people to hop over them while walking or impede the use of bicycles. However, Dr. Kana also explained that the groins should remain relatively covered at the back beach without impediment. Therefore, as the groins move towards their trapping capacity, they will impact the usability of the front part of the beach, but other parts will remain freely passable. Moreover, the installation of groins will make the beach much more useful at high tide and will reduce the need to renourish the beach, which itself creates a disturbance to public use of the beach.

I thus conclude that the benefits of constructing the groins offset the limited impacts to the citizens who expressed concerns.

ISSUES

1. Whether the Project violates section 48-39-290(A)(8) of the South Carolina Code (Supp. 2019) because: (1) Debidue Island does not have a high erosion rate; (2) erosion is not threatening existing development; (3) the monitoring is insufficient and based upon erroneous criteria with

[20] Any liability ensuing to DCCA as a result of the installation of the groins is not an issue for consideration by this Court.

respect to the alleged baseline or background historical erosion rate and the use of the running average erosion rate and Regulation 30-21; (4) the groins will cause detrimental downdrift effects;[21] and (5) DCCA has not submitted an adequate financial commitment to show it can cover the cost of removing the groins and restoring the beach if necessary.

2. Whether the groins will have a significant negative impact upon the important natural resource of the public beach in violation of section 48-39-20(D) of the South Carolina Code (2008).

3. Whether the Project violates section 48-39-30 of the South Carolina Code (2008) because it is inconsistent with this State's policy to protect sensitive and fragile areas from inappropriate development.

4. Whether the Project violates the Coastal Zone Management Act's general considerations under section 48-39-150 of the South Carolina code (2008 & Supp. 2019), including consideration of impacts to wildlife and other natural resources, creation of erosion, the economic benefit analysis, and the adverse environmental impacts of the Project.

5. Whether the Project violates sections 48-39-250(4) and (6) of the South Carolina Code (2008 & Supp. 2019) because it is inconsistent with this State's findings regarding discouraging unwise ocean development and encouraging the beach to accrete and erode naturally.

6. Whether the Project violates section 48-39-260 of the South Carolina Code (2008 & Supp. 2019) because it is inconsistent with this State's policy to "protect, preserve, restore and enhance the beach/dune system" and to provide "a source for the preservation of dry sand beaches which provide recreation and a major source of state and local business revenue."

7. Whether the Project is contrary to Regulation 30-11(B)(10) of the South Carolina Code of Regulations (2012) because it would have a significant negative impact on the value and enjoyment of adjacent property owners.

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[21] The League also raised the issue of whether the groins will have a detrimental effect on adjacent/downdrift areas in violation of Regulation 30-15(G)(2). This regulation repeats the content of section 48-39-290(A)(8); therefore, a violation of 48-39-290(A)(8)would necessarily be a violation of Regulation 30-15(G)(2). For this reason, I discuss these two issues together *infra*.

8. Whether the permit is deficient because it employs inaccurate or improper data with respect to requiring certain mitigation if erosion of the beach adjacent to the Hobcaw Tract exceeds - 8.1ft/cy/yr.

9. Whether the permit is deficient because it does not provide and require for sufficient safeguards to be implemented to protect persons who may be injured by the groins either on the beach or as groins extend into the ocean.

10. Whether the groins violate the Public Trust Doctrine.

STANDARD OF REVIEW

The ALC has jurisdiction over this case pursuant to section 1-23-600(A) of the South Carolina Code (Supp. 2019) section 44-1-60 of the South Carolina Code (Supp. 2019), and sections 48-39-10 *et seq.* of the South Carolina Code (2008 and Supp. 2019).

The Court serves as the finder of fact and makes a *de novo* determination regarding the matters in controversy. *See* S.C. Code Ann. § 1-23-600(B)(Supp. 2019); *Brown v S.C. Dep't of Health and Envtl. Control*, 348 S.C. 507, 512, 560 S.E.2d 410, 413 (2002); *see also Marlboro Park Hosp. v. S.C. Dep't of Health and Envtl. Control*, 358 S.C. 573, 579, 595 S.E.2d 851, 854 (Ct. App. 2004). Therefore, as the trier of fact, the Court may give testimony the weight that he or she determines it deserves. *Florence Cnty. Dep't of Soc. Servs. V. Ward*, 310 S.C. 69, 72-73 425 S.E.2d 61, 63 (Ct. App. 1992).

Additionally, "[t]he qualification of a witness as an expert in a particular field is within the sound discretion of the trial judge." *Smoak v. Liebherr-America Inc.*, 281 S.C. 420, 422, 315 S.E.2d 116, 118 (1984). Where the expert's testimony is based upon facts sufficient to form the basis for an opinion, the trier of fact determines its probative weight. *Berkeley Electric Coop. v. Pub. Service Comm'n*, 304 S.C. 15, 402 S.E. 2d 674 (1991). Furthermore, the trier of fact is not compelled to accept an expert's testimony, but he may give it the weight and credibility that he determines it deserves. *Florence County Dep't of Social Services v. Ward*, 310 S. C. 69, 425 S. E.2d 61 (Ct. App.1992). The trier of fact may accept one expert's testimony over that of another. *S.C. Cable Television Ass'n v. Southern Bell Telephone and Telegraph Co.*, 308 S. C. 216, 417 S. E.2d 586 (1992).

The proper standard of proof in an administrative case before the ALC is a "preponderance of the evidence." *Anonymous (M-156-90) v. State Bd. Of Med. Exam'rs*, 329 S.C. 371, 375-76,

496 S.E.2d 17, 19 (1998); *Nat'l Health Corp. v. Dep't of Health and Envtl. Control*, 298 S.C. 373, 380 S.E.2d 841 (Ct. App. 1989). Furthermore, the burden of proof is upon the party asserting the affirmative of an issue. *Leventis v. Dep't of Health and Envtl. Control*, 340 S.C. 118, 530 S.E.2d 643 (Ct. App. 2000). Therefore, the League, as the petitioner, bears the burden of proving the issuance of the Permit was not proper under the statutory and regulatory framework.

DISCUSSION

Section 48-39-290(A)(8)

Section 48-39-290 discusses "[r]estrictions on construction or reconstruction seaward of the baseline or between the baseline and the setback line; exceptions; special permits." S.C. Code Ann. § 48-39-290(A). It prohibits new construction or reconstruction seaward of the baseline except as allowed under this statute. *Id.* Pursuant to subsection (A)(8), new groins are only allowed if certain requirements are met. The League argues the proposed groins failed to meet several of these requirements.

High Erosion Rate

Groins are only allowed "on beaches that have high erosion rates with erosion threatening existing development or public parks." § 48-39-290(A)(8). The League argues DCCA cannot meet this requirement because the erosion rate at Debidue Beach is not "high" and the erosion is not threatening existing development. I conclude the League has failed to show by a preponderance of the evidence that these requirements have not been met.

There is no statutory or regulatory guidance defining what is a "high" erosion rate. It is an important consideration that the Department has uniformly considered a "high" erosion rate to be above – 3 ft/yr for decades. If the Department's interpretation of "high erosion" is a legal interpretation, then it is entitled to deference. Indeed, when interpreting a statute or regulation administered by an agency that "is silent or ambiguous with respect to the specific issue, the court then must give deference to the agency's interpretation of the statute or regulation, assuming the interpretation is worthy of deference." *Kiawah Dev. Partners, II v. S.C. Dep't of Health & Envtl. Control*, 411 S.C. 16, 33, 766 S.E.2d 707, 717 (2014) (internal quotation marks and citation omitted). In determining whether interpretation is worthy of deference ago courts must consider whether the interpretation has been long-standing. *See Media Gen. Commc'ns, Inc.*, 388 S.C. at 149, 694 S.E.2d at 530–31 ("An agency's long-standing interpretation of a statute is usually entitled to be given deference and should not be overruled by a reviewing court in the absence of cogent

reasons, but the interpretation will not be sustained if it contradicts a statute's plain language."); *see also Etiwan Fertilizer Co.*, 217 S.C. at 354, 60 S.E.2d at 682 ("[W]here the construction of the statute has been uniform for many years in administrative practice, and has been acquiesced in by the General Assembly for a long period of time, such construction is entitled to weight, and should not be overruled without cogent reasons.").

Here, however, the Department's interpretation has never been codified or published. Furthermore, there was no allegation that the Department's interpretation of what is a "high" erosion rate was based upon its interpretation of the meaning of that language. Rather, this long-standing interpretation has been based upon the Department's factual analysis of the shoreline change rates and the application of those facts to reach a conclusion of what is the appropriate threshold for determining a high erosion rate. Nevertheless, whether the Department's interpretation is a legal one or a factual one does not matter in this case because under the facts of this case, the Project is in the area of high erosion.

Although the League contends the Department's threshold rate was "developed arbitrarily and based on studies that do not support the conclusion that 3 feet per year is high," I do not find the Department's interpretation to be arbitrary or unreasonable. The Department's threshold rate of – 3.0 ft/yr is based, in part, on the review of data from the Department's 500 monuments across the State and prior studies of the erosion rates in the State. Further, I found Dr. Kana's analysis of what is high erosion in South Carolina persuasive and his opinion that the uncontested erosion rate of – 4.2 cy/ft/yr or – 5.5 ft/yr was high is consistent with the Department's interpretation.

The League further contends the "erosion rate" referred to in the statute cannot be represented by the Department's rate of – 3.0 ft/yr because, in arriving at this rate, the Department considered accretional coastlines in the State in addition to erosional coastlines. In other words, the League argues that when developing the threshold rate at issue, the Department erroneously considered the overall shoreline change rates in the State instead of just the erosional change rates in the State. Again, consideration of this issue is unnecessary because I found Dr. Kana's factual opinion that the Project was located in an area of high erosion to be persuasive. Additionally, although the statute uses the term high "erosion rate" and not a high "shoreline change rate," it does not instruct that when determining what a high erosional rate is, the change rates across the State, including accretional ones, cannot be considered. I conclude it is reasonable for the Department to consider the "shoreline change rate" when determining if a structure meets the

threshold for what is "high." In other words, examining erosion rates in the context of shorelines change rates as a whole provides a broader picture of how certain erosional rates fall within the spectrum of the State's rates as a whole. Overall, whether I follow the Department's interpretation or that of Dr. Kana, I conclude that the uncontested erosion rate of – 4.2 cy/ft/yr or – 5.5 ft/yr is a high erosion rate under section 48-39-290(A)(8).

Threatening Existing Development

Section 48-39-290(A)(8) requires erosion to be threatening existing development. The League argues there was no evidence that erosion was threatening existing structures outside of storm events. I find the League failed to show existing structures are not threatened by erosion. As discussed *supra*, "threatened" is not defined in any statute or regulation. "Where a word is not defined in a statute, our appellate courts have looked to the usual dictionary meaning to supply its meaning." *See Lee v. Thermal Eng'g Corp.*, 352 S.C. 81, 91–92, 572 S.E.2d 298, 303 (Ct. App. 2002). In Merriam-Webster's Online Dictionary, "threatened" is defined as "having an uncertain chance of continued survival." MERRIAM-WEBSTER'S ONLINE DICTIONARY, https://www.merriam-webster.com/dictionary/threatened (last visited Jan. 12, 2021). In discerning whether a structure is threatened, the Department also looks comparatively to whether the structure is in "imminent danger." This phrase provides clarity because a structure is in "imminent danger" when it is twenty feet from erosion. *See* S.C. Code Ann. Regs. 30-15(H) ("A structure is determined to be in imminent danger when the erosion comes within twenty feet of that structure."). Also, in Merriam-Webster's Online Dictionary, "imminent" is defined as "ready to take place: happening soon." MERRIAM-WEBSTER'S ONLINE DICTIONARY, https://www.merriam-webster.com/dictionary/imminent (last visited Jan. 12, 2021).

In this case, by any reasonable definition, several structures behind the southern portion of the bulkhead and adjacent to it are threatened by erosion. The photographic and video evidence from multiple site visits showed water encroaching within feet of several of the homes and overtopping the bulkhead, which is causing erosion and scour behind the bulkhead in addition to allowing water to flow toward the lower level of homes directly behind the bulkhead. Some of this evidence was procured while a storm passed by South Carolina, but some was not. Water does not necessarily overtop the bulkhead on a daily basis, but the bulkhead is exposed to wave action on a daily basis and lacks the protection and cover of a dry sand beach in front of it. Thus, erosion is not only threatening the structures behind the bulkhead but the structure of the bulkhead

itself. It is eminently clear that erosion is threatening existing structures and this requirement of section 48-39-290(A)(8) has been fulfilled.

Insufficient Monitoring

The League argues the Project violates section 48-39-290(A)(8) because the monitoring under the Permit/Amended Permit "is insufficient and based upon erroneous criteria with respect to the alleged baseline or background historical erosion rate and the use of the running average erosion rate and Regulation 30-21." The League failed to explain this argument in its proposed order, leaving the Court to speculate as to their exact quarrel with the monitoring program and background erosion rate. Subsection 48-39-290(A)(8)(a) requires:

> The applicant shall institute a monitoring program for the life of the project to measure beach profiles along the groin area and adjacent and downdrift beach areas sufficient to determine erosion/accretion rates. For the first five years of the project, the monitoring program must include, but is not necessarily limited to:
>
> (i) establishment of new monuments;
>
> (ii) determination of the annual volume and transport of sand; and
>
> (iii) annual aerial photographs.
>
> Subsequent monitoring requirements must be based on results from the first five-year report.

Based upon my review of the monitoring program outlined in the Permit/Amended Permit, I find the monitoring program meets the statutory requirements of section 48-39-290(A)(8) and the League failed to show otherwise by a preponderance of the evidence. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Detrimental Downdrift Effects

The League also argues the Project violates section 48-39-290(A)(8) because the groins will cause detrimental downdrift effects. Subsection 48-39-290(A)(8)(b) provides "[g]roins may be permitted only after thorough analysis demonstrates that the groin will not cause a detrimental effect on adjacent or downdrift areas." This requirement is repeated in Regulation 30-15(g)(2), which the League also contends the Project violates. S.C. Code Ann. Regs. 30-15(G)(2) ("Groins may only be permitted after thorough analysis demonstrates that the groin will not cause a detrimental effect on adjacent or downdrift areas."). The League argues this statutory provision does not allow for mitigation to be considered when analyzing whether the groins will cause a detrimental effect. The League contrasts the groins that are currently being proposed with other

groins that do not produce detrimental downdrift effects because the downdrift property owner is the same or the groin is placed at the end of a littoral cell where sand would merely move into the ocean rather than past a downdrift beach.[22] The League argues these groin placements would not cause a detrimental downdrift effect regardless of mitigation.

I conclude that if the statute only allowed for groins that did not require mitigation or were placed so as not to create a detrimental effect at the League suggests, then the statute would have no reason to include monitoring, mitigation, and notice provisions for downdrift property owners. *See* § 48-39-290(A)(8)(c) ("If the monitoring program established pursuant to subitem (a) shows an increased erosion rate along adjacent or downdrift beaches that is attributable to a groin, the department shall require either that the groin be reconfigured so that the erosion rate on the affected beach does not exceed the preconstruction rate, that the groin be removed, and/or that the beach adversely affected by the groin be restored through renourishment."); § 48-39-290(A)(8)(d) ("Adjacent and downdrift communities and municipalities must be notified by the department of all applications for a groin project."). Moreover, the League's example of the groins that do not create a detrimental downdrift effect indicates that the operable word is "detrimental." All groins create a downdrift impact as evidenced their very function and the expert testimony in this case, but whether it constitutes a "detrimental" impact is the question. There is nothing in the statute that states mitigation cannot be considered when evaluating whether the effect of a groin will be "detrimental." I conclude that mitigation that is built into the groin project may be considered when analyzing whether the groins will cause a detrimental downdrift effect.

In this case, the League correctly notes that all the experts agreed that the groins, without the mitigation of the simultaneous renourishment, would cause a detrimental effect on the downdrift Hobcaw Tract. Groins, by their very nature, cause this effect. However, the evidence presented by Dr. Kana and Dr. Kaczkowski also showed that the accompanying renourishment of 650,000 cu/yds of sand was more than enough to mitigate this detrimental downdrift effect for several years and even increase the flow of sand to the Hobcaw Tract during that time. Nevertheless, at some point, the excess sand from the renourishment will erode such that the groins may begin to cause a detrimental effect; however, I conclude the mitigation trigger rate in the

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[22] This last type of groin is called a "terminal groin." It is a groin that is located at the end of a littoral cell where, if the sand were not captured, it would have gone out into the ocean rather than being deposited on a beach below the groin. There is a terminal groin at the end of Folly Beach.

Amended Permit, which is less than the background erosion rate for the Hobcaw Tract of – 8.1 ft/yr, should trigger mitigation before the detrimental effects of the groins are felt. Therefore, I find the League failed to show by a preponderance of the evidence that the groins will cause a detrimental effect on the downdrift property such that they cannot meet the requirements of section 48-39-290(A)(8)(b). *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Financial Commitment

Finally, the League argues the Project will violation section 48-39-290(A)(8) because DCCA has not submitted an adequate financial commitment to show it can cover the cost of removing the groin and restoring the beach if necessary. Section 48-39-290(A)(8)(b) & (c), in relevant part, provides:

> The applicant shall provide a financially binding commitment, such as a performance bond or letter of credit that is reasonably estimated to cover the cost of reconstructing or removing the groin and/or restoring the affected beach through renourishment pursuant to subitem (c).
>
> (c) If the monitoring program established pursuant to subitem (a) shows an increased erosion rate along adjacent or downdrift beaches that is attributable to a groin, the department shall require either that the groin be reconfigured so that the erosion rate on the affected beach does not exceed the preconstruction rate, that the groin be removed, and/or that the beach adversely affected by the groin be restored through renourishment.

I find the League failed to show by a preponderance of the evidence that DCCA has failed to meet these statutory requirements. The credible evidence showed the removal of the groins could cost approximately $435,000. This is well-within DCCA's letter of credit for $1 million submitted with the Amended Permit. Furthermore, DCCA is already willing to spend several million on this Project, which includes a simultaneous renourishment that should do more than restore the beach if the groins must be removed early on after they are installed. And, if the groins must be removed several years later, then DCCA's Beach Preservation Fund, which is predicted to grow to $10-12 million over the next twelve years, will be able to compensate for any deficiencies.

Section 48-39-20(D)

Section 48-39-20 includes several legislative declarations of findings, including subsection (D), which provides "[t]he coastal zone and the fish, shellfish, other living marine resources and wildlife therein, may be ecologically fragile and consequently extremely vulnerable to destruction by man's alterations." While the League included this issue in its most recent Amended Prehearing

Statement, the League did not discuss this statute in its arguments at trial or in its proposed order. Nevertheless, the first seven special conditions of the Permit/Amended Permit directly address the protection of wildlife and marine resources during the installation of the groins and renourishment. Therefore, I conclude the League failed to show by a preponderance of the evidence how the Project violates section 48-39-20(D). *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Section 48-39-30

Section 48-39-30 discusses legislative declarations of policy. The specific subsection the League is concerned with is subsection (B)(1), which provides that is the policy of this State

> To promote economic and social improvement of the citizens of this State and to encourage development of coastal resources in order to achieve such improvement with due consideration for the environment and within the framework of a coastal planning program that is designed to protect the sensitive and fragile areas from inappropriate development and provide adequate environmental safeguards with respect to the construction of facilities in the critical areas of the coastal zone;

S.C. Code Ann. § 48-39-30(B)(1). The League merely argues the permitted groins are contrary to this policy without explaining why. Without some argument or explanation, the Court is again left to speculate as to how this policy is violated. The League has not explained why the proposed groins qualify as "inappropriate development" under this declaration of policy such that they should not be permitted. Accordingly, the Court can only conclude the League failed to show by a preponderance of the evidence that the Project violates this statutory declaration of policy. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

The CZMA's General Considerations under § 48-39-150

Section 48-39-150 discussed several general considerations the Department should be guided by when evaluating whether to approve or deny a permit. While the League included this issue in its most recent Amended Prehearing Statement, the League did not discuss this statute in its arguments at trial or in its proposed order. Therefore, I conclude the League failed to show by a preponderance of the evidence how the Project violates section 48-39-150. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Sections 48-39-250(4) and (6)

The League makes a conclusory argues that the permitted groins are inconsistent with sections 48-39-250(4) and (6). Overall, section 48-39-250 describes legislative findings regarding the beach/dune system in the State. Subsection (4) provides the following legislative finding:

> Chapter 39 of Title 48, Coastal Tidelands and Wetlands, prior to 1988, did not provide adequate jurisdiction to the South Carolina Coastal Council to enable it to effectively protect the integrity of the beach/dune system. Consequently, without adequate controls, development unwisely has been sited too close to the system. This type of development has jeopardized the stability of the beach/dune system, accelerated erosion, and endangered adjacent property. It is in both the public and private interests to protect the system from this unwise development.

Subsection (6) makes the following finding:

> Erosion is a natural process which becomes a significant problem for man only when structures are erected in close proximity to the beach/dune system. It is in both the public and private interests to afford the beach/dune system space to accrete and erode in its natural cycle. This space can be provided only by discouraging new construction in close proximity to the beach/dune system.

The Court is left to speculate as to exactly how the installation of three groins violates the policy in subsection (6), which seems to be directed more at the original development of some parts of DeBordieu Colony that are now threatened by erosion due to their close proximity to the dune/beach system. Subsection (4) is more probative. This subsection finds that it "is both the public and private interests to afford the beach/dune system space to accrete and erode in its natural cycle." *Id.* Installing groins would clearly alter the natural cycle of erosion at Debidue Beach; indeed, that is the very purpose of the groins. Therefore, this finding is a consideration when evaluating the Permit/Amended Permit at issue. However, it is not determinative of whether the Permit/Amended Permit should be granted; if it were, then groins would not be permitted by statute at all because they all artificially disturb the erosion/accretion cycle. This policy finding must be balanced against what is allowed under our statutory law, which includes groins. In this case, the best long-term option to balance protecting the threatened structures at Debidue Beach and limiting environmental disturbances over time was the proposal to install three groins with an accompanying renourishment.

Section 48-39-260

The relevant part of section 48-39-260 provides it is the policy of South Carolina to "(1) protect, preserve, restore, and enhance the beach/dune system, the highest and best uses of which

are declared to provide . . . (b) a source for the preservation of dry sand beaches which provide recreation and a major source of state and local business revenue." S.C. Code Ann. § 48-39-260(1)(b). The League makes a conclusory argument that the proposed groins are inconsistent with this section. I do not necessarily find the proposed groins are inconsistent with this section. The purpose of the installing the groins, especially the two northernmost groins, is to create and preserve a dry sand beach in front of the bulkhead. Currently, there is no dry sand beach in front of the southern end of the bulkhead, which prevents people from recreating on that part of the beach at, or near, high tide. I find the League failed to show by a preponderance of the evidence that the proposed groins should not be permitted because they are inconsistent with this section. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Regulation 30-11

Regulation 30-11 requires the Department to be guided by the considerations in section 48-39-150, which includes considering "[t]he extent to which the proposed use could affect the value and enjoyment of adjacent owners." S.C. Code Ann. Regs. 30-11(B)(10). The League argues the Permit will have a significant negative impact on the value and enjoyment of adjacent property owners, contrary to Reg. 30-11. In support of their argument, the League cites to four property owners and members of the League who testified that their recreational activities on Debidue Beach and along the Hobcaw Tract would be impeded by both the construction and existence of the groin field. The League argues that as the renourishment sand is inevitably eroded away, the impact to beach recreation will become greater and greater.

I conclude the proposed groins will impact the use and enjoyment of the beach, but this impact will not be significantly negative. The evidence showed the groins will eventually become exposed to an extent, particularly towards the front beach. The exposure of the groins will likely require persons walking down the beach to step over them and will likely prevent a bicycle from traveling unimpeded down the front beach. However, the evidence also showed the groins are unlikely to be exposed on the back beach where access should remain to recreate on the beach without impediment. Importantly, a significant portion of the area where the groins will be placed is currently unusable during high tide because there is no dry sand beach in front of the bulkhead, which was acknowledged by the Leagues witnesses. Therefore, this portion of the beach will be regained for recreation and enjoyment as a result of the proposed groins. Because of the positive effect the Project will have in front of the bulkhead, I do not find their overall impact to the use

and enjoyment of the beach is prohibitive in granting the Permit/Amended Permit. Moreover, only one League member testified she was concerned the groins would lower property values but provided no evidence to support her opinion. *Clark v. Greenville County*, 313 S.C. 205, 437 S.E.2d 117 (1993) ("Bald allegations of diminution in property value are insufficient to create a genuine issue of fact regarding damages absent any competent evidence showing the existence, amount, or causation of damages.").

Lastly, it is notable that the Permit/Amended Permit contains Special Condition 15, which requires that "[a]ccess along the beach in the vicinity of the new groins must be maintained or improved." This condition further provides that "[i]f access is impacted or eliminated, temporary access around or over the groins must be established immediately" and "[w]ithin 30 days of notification from the department, a plan to provide permanent access around or over the groins must be submitted by the entity responsible for the groin construction." Accordingly, I find the League failed to show by a preponderance of the evidence that the proposed groins are inconsistent with Regulation 30-11(B)(10) such that the Permit/Amended Permit should be denied. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Data Supporting Mitigation if Erosion of the Hobcaw Tract Exceeds - 8.1ft/yr

The League provided no specific argument on this issue. The credible evidence supported a background erosion rate at the Hobcaw Tract of – 8.1 ft/yr. Therefore, I conclude the League failed to show by a preponderance of the evidence that this erosion rate was incorrect or otherwise defective or deficient. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Safeguards to Protect Persons Who May Be Injured by the Groins

While the League included this issue in its most recent Amended Prehearing Statement and quoted Mr. Lacey's testimony about the danger of injury from groins in their Proposed Order, the League did not discuss this statute in its arguments at trial or in its proposed order. Therefore, I conclude the League failed to show by a preponderance of the evidence how the Project violates section 48-39-150. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

Public Trust Doctrine

While the League included this issue in its most recent Amended Prehearing Statement, the League did not discuss this statute in its arguments at trial or in its proposed order. Therefore,

I find the League failed to show by a preponderance of the evidence that the Project violates the Public Trust Doctrine. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

CONCLUSION

I find the League failed to show by a preponderance of the evidence that the Department erred in granting DCCA a permit for the proposed groins. *See Anonymous (M-156-90)*, 329 S.C. at 375-76, 496 S.E.2d at 19.

IT IS THEREFORE ORDERED that the Department's issuance of Permit/Amended Permit 2017-01795 is **AFFIRMED**.

AND IT IS SO ORDERED.

Ralph King Anderson, III
Chief Administrative Law Judge

January 15, 2021
Columbia, South Carolina

CERTIFICATE OF SERVICE

I, Stephanie Perez, hereby certify that I have this date served this Order upon all parties to this cause by depositing a copy hereof in the United States mail, postage paid, or by electronic mail, to the address provided by the party(ies) and/or their attorney(s).

Stephanie Perez
Judicial Law Clerk

January 15, 2021
Columbia, South Carolina