

# Greenville Journal

## Keeping it going

### Clemson on the coast is all about sustainability

By Anna B. Mitchell  
Staff Writer

Clemson University leaders didn't know it at the time, but the raising of the H.L. Hunley Confederate submarine in 2000 would some day lead to the establishment of a research center whose broad goal is to preserve and sustain human culture.

Clemson University's Restoration Institute established in 2007 on 86 donated acres of the old Naval Base in North Charleston today includes the research lab working since 2001 – with help from Clemson scientists – to save the Hunley from corrosion.

More recently, the Institute attracted \$98 million in federal and state grants for wind-turbine research, to be located in an enormous 1940s-era naval structure 30 seconds walk from the Hunley's Lasch Research Laboratory.

"It's starting to come together and become a contiguous campus," said Peter Hull, a spokesman for the Restoration Institute.

The wind-energy grant falls in line with the Institute's larger aim of creating systems and structures that are permanent, embrace history and are environmentally friendly. Fronting the Cooper River and counting among its neighbors the Charleston Ports Authority, the land was part of a naval facility on 1,800 acres until it closed in 1995.

"So, you know, there are broken windows, overgrown rail tracks," Hull said. "And we will over the years as projects come in revitalize the area, make it a thriving research campus."

Modeled largely on the International Center for Automotive Research in Greenville, the Restoration Institute is marrying research with private investors banking on long-term economic development and intellectual property breakthroughs, said its director, John Kelly.



The spar of the Hunley, being raised here in 2000, was used to ram the Union blockader, the USS Housatonic.

Unlike ICAR, the Restoration Institute has no new buildings and no plans to build them.

"What originally happened is we were given responsibility of conservation of the Hunley and the laboratory that was to happen in," Kelly said. "Then the idea came, 'Let's move this to something much bigger – a restoration institute – and tie these other disciplines together.'"

Wind energy was an extension of sustainable communities and a natural fit with the coastal setting. Offshore wind could someday supply 50 gigawatts of energy, a 2008 Department of Energy study found. Duke Energy's supply is 35 GW.

"We will bring (wind energy) drive trains in and test those to failure," Kelly said. "If you want off-shore installations, you want them to be low-maintenance."

Clemson, a land-grant institute, has long reached across South Carolina to bring research where it's needed, Kelly said.

South of Charleston is the Coastal Research and Education Center, where Clemson researchers grow and test vegetables. Near Georgetown, the Baruch Institute studies beach ecology, important in the wake of massive coastal development. A 21-year-old architecture program operates

in the heart of Charleston, and ICAR is close to the headquarters of Michelin and BMW.

Ashley Robbins, interim director of the Clemson-College of Charleston historic preservation program has students working at the St. Phillips Episcopal cemetery and Drayton Hall.

"The columns out there have been covered in paint," Robbins said. "One of our students is removing all the paint, trying to find the best agent to remove it, and will put a lime wash back on there."

Robbins' history-loving students lean on the Lasch Laboratory when they need technical help with metal artifacts. The lab has equipment that analyzes corrosion at the molecular level – key to saving the Hunley but also with larger implications for halting the corrosion of modern-day vessels.

Researchers also study hurricane and earthquake resistant bridges, gather pollution data with sensors along the Savannah River and analyze the biochemical makeup of oysters to make them resistant to algae and barnacles and bio-fuels.

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