Outlook

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"Your project. Our passion."

TAPE GRASS RESTORATION IN THE CALOOSAHATCHEE RIVER

A public/private/academic partnership is helping to restore grass flats and reclaim marine habitats lost during the past decade within the upper basin of the Caloosahatchee River.

Historically, the tidal Caloosahatchee River and estuaries were filled with meadows of American eelgrass, also known as tape grass or wild celery. Contrary to their name, they are not actually grass, but are flowering submerged aquatic vegetation (SAV). SAV are food for grazing manatees, turtles, ducks, and other herbivores, as well as habitat for crustaceans and more than 44 fish species. They also help stabilize sediments, sequester carbon, absorb nutrients like phosphorus and nitrogen, and improve water quality.

Johnson Engineering's Senior Aquatic Ecologist, David W. Ceilley collects tapegrass samples in the Caloosahatchee River during his three-year research restoration study for the South Florida Water Management District and Lee County.

Since 2001, the Fort Myers area has lost over 1,200 acres of dense tape grass meadows in the upper estuary of the Caloosahatchee River. Since *Vallisneria americana* was the dominant species of SAV in the upper estuary, it formed the foundation of the aquatic ecosystem. This lack of seagrass leads to an unstable and unhealthy aquatic environment, which negatively affects both aquatic life and humans.

In 2018, Johnson Engineering's Senior Aquatic Ecologist, David W. Ceilley and his team completed a three-year research study for the South Florida Water Management District and Lee County, to determine the best way to restore the *Vallisneria americana* in the Caloosahatchee River and upper estuary.

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PEOPLE & PROJECTS: *ON THE MOVE*

Shane Masse, EI has joined our Water Resources team. Shane is an Engineer Intern who received his Bachelor of Science degree in environmental engineering from Florida Gulf Coast University.

Mark Thomas, EI in the company's Utilities market group, has successfully passed the Principles and Practice of Engineering (PE) examination required for licensure. He expects to receive his license from the State of Florida early 2019.

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The research consisted of planting and monitoring the grasses growth, resilience, and flowering, while also protecting it from grazing predators and boaters. Throughout the study, the team encountered various situations and had to take corrective action to solve specific dilemmas. The type of seagrass, the soil, and as it turns out, the type and style of cage used to surround these grasses was extremely important to protecting them from damage. The team from Sea and Shoreline built special metal cages to surround the seagrass to protect it from grazers and allow it time to flower. This study was imperative in determining the final location and strategy to begin the restoration within the river and will increase the probability of success.

(L to R): Angler Action Foundation's Brett Fitzgerald, Johnson Engineering's David Ceilley, and Sea and Shoreline's Carter Henne were interviewed by NBC2 News at the Caloosahatchee seagrass restoration project planting event.

In October, Johnson Engineering, along with partners Angler Action Foundation (formerly Snook and Gamefish Foundation), Sea and Shoreline, and Florida Gulf Coast University (FGCU), began Phase I of the Tape Grass Restoration and Seed Stock Enhancements in the Caloosahatchee River estuary. This public/private/academic partnership project will consist of three phases. Phase 1 includes planting and protecting 20-acres of tape grass habitat at three locations in the Caloosahatchee upper estuary where water depths and sediment are suitable for growth and survival based on previous studies. Using a mechanical planting barge, two large wheels spin and bury hundreds of budding seagrass pods. The machine can plant one acre of seagrass per day. Phase II and Phase III are scheduled to take place in the Indian River Lagoon, other Caloosahatchee River locations, and other habitat-needy areas.

The Angler Action Foundation is overseeing the project, while Sea and Shoreline will be planting and protecting tens of thousands of plants in the upper estuary and maintaining enclosure cages for three years to get grass beds established. David W. Ceilley will continue leading a research team, in partnership with FGCU faculty and graduate students, to quantify the ecosystem services provided by this habitat restoration. Ecosystem services include improved fish and macroinvertebrate habitat, nutrient uptake, sediment stabilization, and water quality improvements.

This will be one of the most unique habitat revitalizations in this area of the Caloosahatchee. This research has determined that this tape grass is very resilient and has even survived during the blue-green algae blooms.

Johnson Engineering will continue to monitor the tape grass and document the environment, including fish and invertebrate recruitment, sediment stabilization, as well as nutrient and carbon uptake, throughout the restoration area. By restoring the tape grass in the Caloosahatchee River, it's one step closer to helping get our ecosystem back on track.

For more information, contact David W. Ceilley at (239) 461-3395 or dwc@johnsoneng.com. ■

The team plants hundreds of seagrass pods using a mechanical planting barge with two large wheels that spin and bury the pods in the Caloosahatchee River bottom.

Weighted wire exclosures protect the seagrass from grazing predators and boaters.

FGCU BREAKS GROUND ON TWO NEW BUILDINGS

The students at Florida Gulf Coast University (FGCU) will soon have a new 50,000 square foot fitness center to use and also access to a new 27,000 square foot community counseling clinic.

The Recreation and Wellness Center has been a long time coming due to permitting constraints, but the school broke ground on the project this fall, which is expected to open in the early spring of 2020.

The two-story facility will be located in the South Village (SoVi) area of campus and will include two gymnasiums; multi-purpose, strength, and fitness rooms; a cardio deck; observation concourse; as well as an outdoor fitness area and event plaza.

The new Student Health and Counseling Center will also be available to students in the fall of 2019 and will integrate both classroom and community outreach. The center will allow students a place to train for careers in mental health services and it will also serve as a community counseling center to support the community through direct counseling, consultation services, training, outreach, and prevention.

As the civil engineer, our involvement isn't commonly seen, but with each completed building comes layers of planning and site design criteria, drainage and water management, roadway, and parking considerations. Johnson Engineering has worked closely with the University since its inception, helping it take shape as it grows and educates our future generations.

For more information, contact Dana Hume, PE, at (239) 461-2471 or dhume@johnsoneng.com. ■

FGCU's Recreation and Wellness Center
(Rendering courtesy of Harvard Jolly Architecture)

FGCU's Student Health and Counseling Center
(Rendering courtesy of Burt Hill/Pollock Krieg Architects, Inc.)

SOUTH LEE COUNTY NOW HAS A NEW MEDICAL FACILITY

Lee Health has officially opened the new state-of-the-art Coconut Point Health and Wellness Facility in Estero, located on the corner of Coconut Road and Via Coconut Point Road. The 163,000 square foot medical facility includes a cutting-edge emergency department, outpatient services, family practice professionals, a rehabilitation center, woman's health services, and a full-service pharmacy.

This project has come a long way since 2016 when the staff built life-size 3D cardboard prototypes to assist them in designing the interior layout. This allowed them to model and reenact various medical scenarios in order to test the most efficient use of space prior to design and construction. These simulations provided them first hand-experience to test out how the new facility would work in real world scenarios. Now they finally get to utilize their patient-focused design, providing a more efficient delivery of care to patients.

In 2016, the cardboard mock up allowed Lee Health clinicians to move doorways, walls, and equipment around to ensure both personnel and tools are optimally placed to provide the most efficient patient care possible.

Johnson Engineering planners, engineers, and landscape architects worked closely with Lee Health and Flad Architects throughout the process so the design of site features including access, parking, water management, open spaces, and landscaping were consistent with their goals and aid in the overall positive experience for those working and using the facility.

For more information, contact Dana Hume, PE, at (239) 461-2471 or dhume@johnsoneng.com. ■

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SUSTAINABLE FORESTRY INITIATIVE PEFC

PASCO COUNTY MAKING INTERSECTION SAFETY IMPROVEMENTS

The Pasco County Transportation Department is working to make their intersections safer. Johnson Engineering's transportation engineers have assisted the County in the design of a new traffic signal at the intersection of Starkey Boulevard and Alico Pass in New Port Richey, as well as the intersection of Collier Parkway and Killington Boulevard in Land O'Lakes.

To improve the intersection of Starkey Boulevard and Alico Pass, the team also designed a new turn lane, along with additional sidewalks and pedestrian crosswalks.

At the intersection of Collier Parkway and Killington Boulevard, in addition to the new traffic signal, improvements included upgrading the crosswalks and improving intersection lighting as well. These improvements will help to increase the safety of those visiting the nearby Land O'Lakes Recreation Complex.

For more information, contact Phil Chang, PE, at (813) 909-8099 or pchang@johnsoneng.com. ■

Johnson Engineering traffic engineers Phil Chang, PE and Ryan Bell, PE, PTOE, attend the ribbon cutting with Pasco County Commissioner Mike Wells and County staff, for the new traffic signal at Starkey Boulevard and Alico Pass in New Port Richey.

Johnson Engineering traffic engineers Leah Holmes, PE, and Phil Chang, PE, attend the ribbon cutting with Pasco County Commissioner Mike Moore and County staff, for the new traffic signal at Collier Parkway & Killington Boulevard in Land O'Lakes.

(All photos courtesy of Pasco County.)