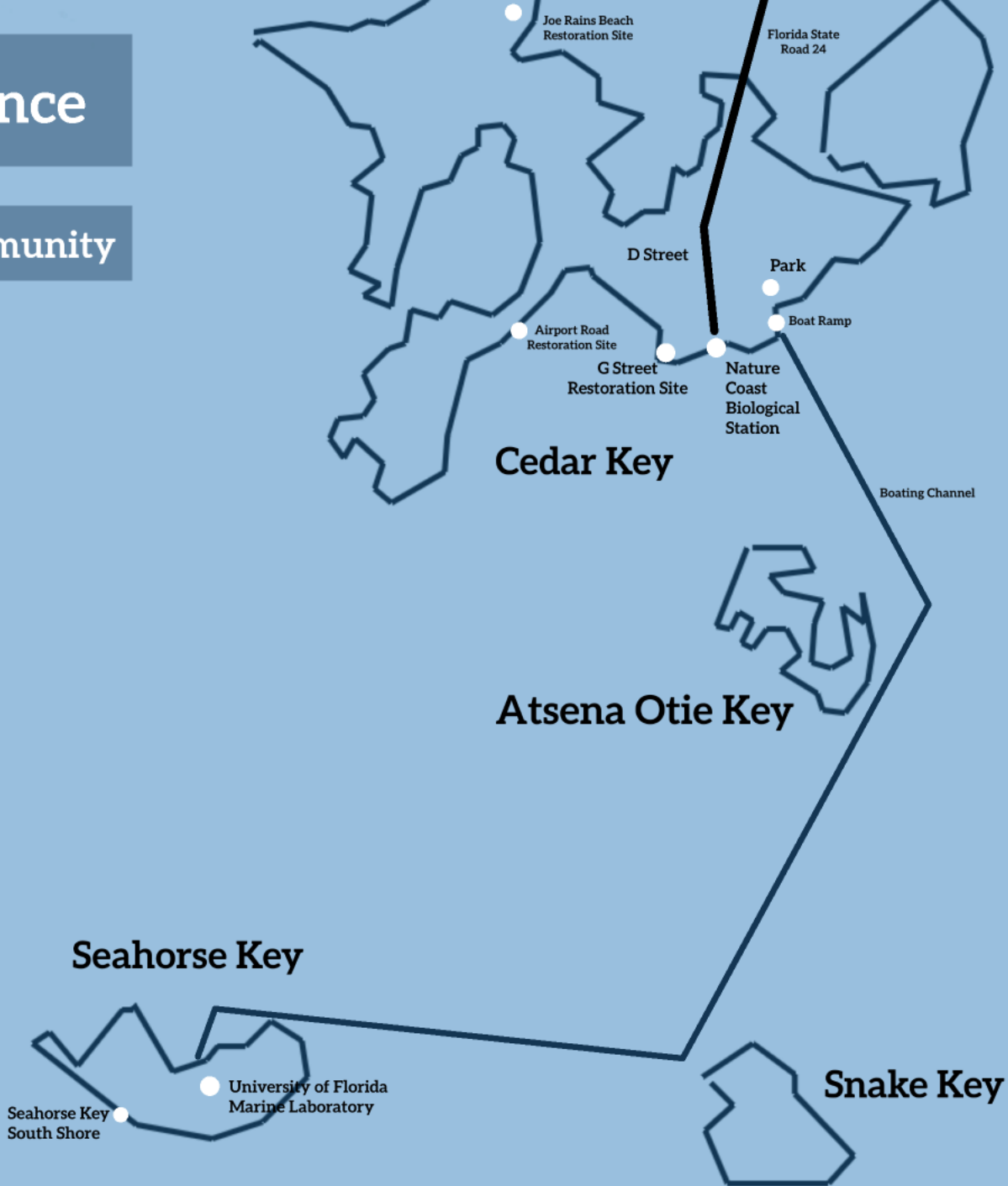


The Key to Resilience

Cedar Key, FL: A Spirited Community

North Key



Cedar Key

Atsena Otie Key

Seahorse Key

Snake Key

Seahorse Key
South Shore

University of Florida
Marine Laboratory

Airport Road
Restoration Site

G Street
Restoration Site

Joe Rains Beach
Restoration Site

D Street

Park

Boat Ramp

Florida State
Road 24

Nature
Coast
Biological
Station

Boating Channel

Cedar Key, FL

Cedar Key is a small, Florida town on the Gulf of Mexico. The city itself is only two square miles, hosting a population of less than seven-hundred. Their main export is oysters with approximately thirty-five percent of the population growing oysters. In August 2023, Cedar Key experienced nearly a direct hit from Category 4 Hurricane Idalia that severely damaged multiple buildings. The only major road that runs through the center of town ends at the Nature Coast Biological Station (NCBS) run by the University of Florida's Institute of Food and Agricultural Sciences (IFAS) that helps to address the communities environmental needs, especially in emergency situations like hurricanes.



Nature Coast Biological Station

The NCBS is an extension site of the University of Florida. As a Land Grant University, UF has various outreach offices across the state of Florida to help propagate better management of the land. This includes helping people make a living off the land, educating the public, and protecting the land to maintain sustainable farming practices. The NCBS is also part of the Sea Grant, which provides the same services but in reference to bodies of water and aquaculture. The station is a vital component to maintaining the oyster industry and protecting wildlife directly in Cedar Key.



Photo taken by Dr. Jaime Loizzo

Inside the Station

The director of the station is Mike Allen, a fishery scientist, that manages the station, helps with educational outreach, and conducts research. Allen and the NCBS's research involves optimizing oyster beds to filter feed; tracking fish populations, such as the newer populations of Snook; maintaining Cedar Key's coastline, now threatened by hurricanes and rising sea levels; and reforming the recovery aquaculture industry to maximize production post-hurricane and minimize environmental damage.

Regional Specialized Extension Agent, Savanna Barry, focuses on the coastline conservation aspect of the NCBS's work and research. With the assistance of Coastal Resilience Program Coordinator, Haley Cox, Barry develops, implements, and maintains living shorelines across Cedar Key. There are currently three locations: G Street, Joe Rains Beach Park, and Airport Road. However, NCBS has plans to create more living shorelines across most coastlines of Cedar Key, already having researched the most appropriate implementation strategy for each site.



Photo of Mike Allen taken by Marisa Crowhurst

Photo of Haley Cox and Savanna Barry by Dr. Jaime Loizzo



Behind the Station



Inside the Station

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G Street



The smallest but most public of all three living shoreline projects is the one on G Street. The shorelines are used to deplete wave strength and protect the infrastructure nearby: roads, homes, restaurants, and more. During Hurricane Idalia, the living shorelines attenuated twenty percent of wave energy. This location specifically utilizes oyster prisms for the oysters to latch on in the water and grow to create the wave buffer. Further inland, the oyster prisms are used for vegetation stability and an erosion buffer. The various marsh grass species anchor their roots to the prisms and keep the sand in place. Alongside the ecosystem benefits, the marsh grass provides aesthetic benefits for the public to have a green space to enjoy. The grasses also provide areas for native organisms to thrive, such as crabs and insects.

Joe Rains Beach Park

Joe Rains Beach Park was a car park and beach for many years. Unfortunately, after the unprotected shoreline experienced enough daily tidal changes, the parking lot began falling through the man-made sea wall that it sat upon. This prompted NCBS to install a living shoreline that looks slightly different than the one previously seen. This shoreline also has oyster prisms in the mudflats surrounding the beach as well as native marsh grasses. However, after the establishment of the grasses occurred, new vegetation grew in naturally, such as purslane and mangroves. Although mangroves are not typically located as far north as Cedar Key, the warmer climatic patterns have allowed them to grow and outcompete some of the native grasses. Although the mangroves are not typical of this area, on a macro-level, they are not harmful to the ecosystem and further help prevent shoreline damage. Overall, this beach helps to protect the homes and the nearby canal from erosion and deposition.







Airport Road

Airport Road is the largest site of the shoreline restoration project. The site backs immediately up to a road that historically suffered severely from wave damage, especially during hurricanes. There is less vegetation at this site compared to the others due to the fact that the elevation changes much more quickly in a much smaller space which is not conducive to marsh plant growth. The shoreline is placed entirely on private property by homeowners that approved the project. The oyster beds at this location are made from oyster ball beds rather than the prisms seen at the other sites. This creates higher, more rounded beds of oysters to catch even more of the wave energy that the shoreline endures. This living shoreline protected the road from the second highest surge event seen in Cedar Key from Hurricane Idalia; this road would have otherwise cracked and washed away, destroying a lot of the homeowners' property. Overall, the living shoreline research by NCBS and IFAS has been extremely successful and benefited the Cedar Key community in many ways.

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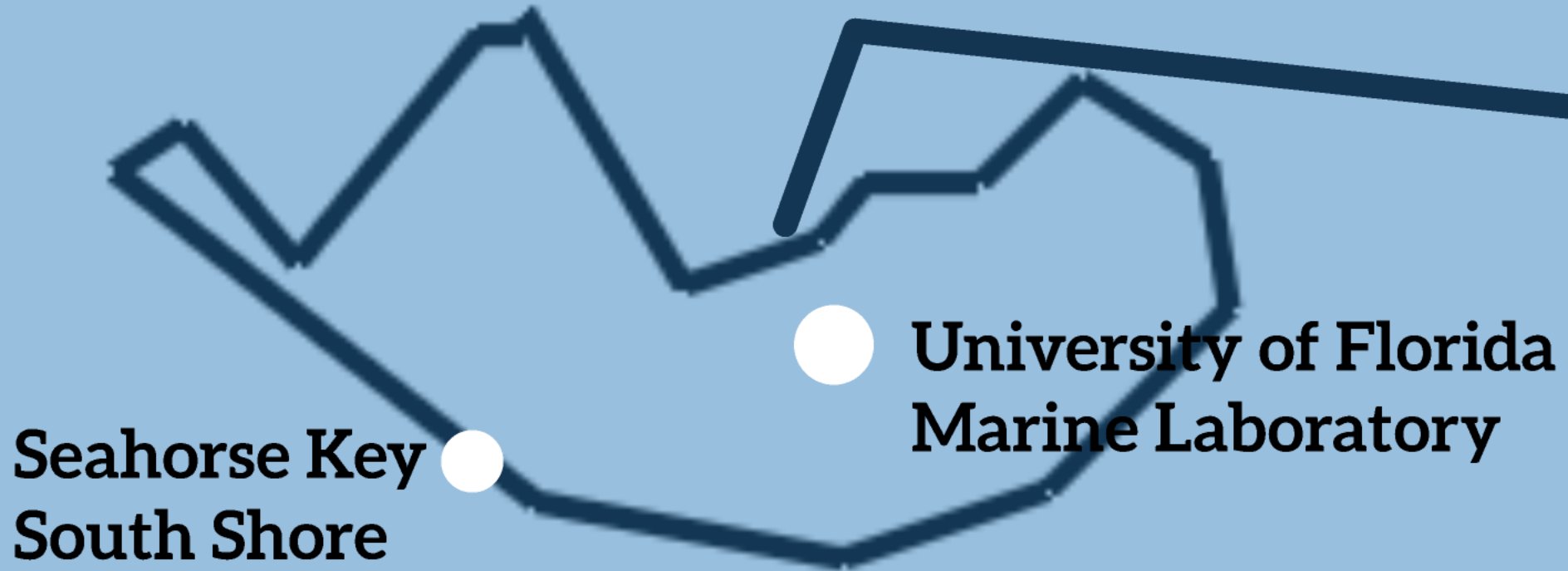


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Seahorse Key





Seahorse Key IFAS Laboratory

Off the southern coast of Cedar Key, the island of Seahorse Key hosts another UF IFAS facility that assists in local environmental research. The laboratory hosts equipment for aquatic, soil, plant, and wildlife labs to help aid in monitoring the status of the ecosystem. The facility is only accessible by boat and is not open to the general public, which is different than the NCBS. The laboratory sits along the north shore of the island, just in front of a hill with a lighthouse and living quarters for around twenty guests.





The Lighthouse



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Seahorse Key South Shore

The southern shore of Seahorse Key bared the brunt of Hurricane Idalia as it moved north up the Gulf Coast. The diverse forest system full of oaks and palms lost almost all of the sandy soil that keeps the trees in the ground. Many trees fell after the ground was swept out from under them, but many were left standing with huge exposed roots. Multiple feet of sand was pulled out to the surrounding ocean, which could take years to naturally replenish. However, this natural shoreline protected the lighthouse and IFAS facilities from being damaged by the massive waves. Although the damage was significant, the island has already shown signs of recovery. Natural systems are much more resilient than man-made infrastructure. The wildlife has left tracks and droppings across the beach and forest, the trees are growing new green leaves, and the insects have already re-established themselves.





The Cedar Key Community

Despite the hardships that this small community has experienced in the past year, they have an uncrushable spirit and incredible resilience. The town hosts a Pirate Festival every first weekend of November and hurricane damage did not stop them in 2023. The community gathered swiftly to restore their town to normalcy and continued to go above and beyond. The spirit in the community is extremely palpable to all visitors, especially during an event as unique and enjoyable as the Pirate Festival.

Resilience

Cedar Key is a testament to resilience. The key to this resilience is spirit and community. The community aspect can be seen anywhere from a larger organization like NCBS that supports the locals to individual good samaritans that help others during times of need. Cedar Key will continue to face many environmental obstacles as the climate continues to change, but this community will survive. Through preparation for future disasters by modifying infrastructure to accommodate flooding; continued support from IFAS, NCBS, and the government; and community spirit and kindness, this little coastal will make it through the hardships that it faces.

