Gator MacRae, owner of MacRae's of Homosassa in Citrus County, Florida, is one of the coastal business owners who depend upon healthy ecosystems in the Nature Coast Aquatic Preserve.

Community Voices Are Key to Management of Florida's Nature Coast Aquatic Preserve

Local stakeholders work with state to set priorities, guide planning to protect environment, economy, and a way of life

Overview

Florida's Nature Coast Aquatic Preserve, created in June 2020, spans more than 700 square miles along the coasts of Citrus, Hernando, and Pasco counties and protects coastal habitat, including part of the Gulf of Mexico's largest seagrass meadow, as well as sponge fields, mangrove forests, oyster reefs, and salt marshes. These ecosystems provide habitat for a vast array of marine animals and form the backbone of the region's coastal economy. More than 100 coastal businesses and nine recreational fishing and marine industry organizations backed establishment of the preserve, which hosts summertime scalloping, world-renowned fishing and manatee watching, and other activities that generate more than $600 million annually for local communities, provide over 10,000 jobs, and support about 500 businesses.[1]

Each of Florida's 42 aquatic preserves has a management plan that is tailored to provide managers and local communities with a roadmap for effective stewardship and must strike a balance between human uses and conservation needs. The Nature Coast preserve plan will determine how managers conserve its seagrass, mangrove islands, salt marsh, oysters, sponges, corals, and other assets and will outline monitoring and restoration necessary to identify and address changes in water quality and habitats that could result from any proposed land-based development or other human activities.

As state environmental officials begin the process of developing a plan to oversee the preserve, regional stakeholders and the public will have a chance to help shape the plan and ensure protections for water quality, wildlife, habitats, and the boating, fishing, scalloping, and other traditional activities they support. Diverse public input is key to the success of the plan, which will guide the preserve's future and leave a legacy for generations to come.

How Florida Develops Preserve Management Plans

Captain William Toney of Homosassa, Florida, a fourth-generation fishing guide, holds a redfish. Fishermen like Toney can share decades of on-the-water knowledge to help shape the preserve management plan.

The Office of Resilience and Coastal Protection, which is housed in the state's Department of Environmental Protection, oversees creation of the management plans in partnership with local communities. The office gathers information on the preserve and surrounding areas and convenes a formal advisory committee to ensure adequate representation of local interests as the plan is written and implemented. In addition to preserve staff, the committee may include fishing guides, eco-tourism operators, fishermen, boaters, scientists, local governments, conservationists, and citizens. Public meetings also provide a venue for these stakeholders to provide input and remain informed throughout the process.

Once a plan is written, the Acquisition and Restoration Council must approve it. The council is a 10-member group consisting of state environmental agency representatives and appointees of Florida's

governor, Fish and Wildlife Conservation Commission, and commissioner of Agriculture and Consumer Services. The governor and cabinet have final approval authority.

The Department of Environmental Protection works with stakeholders to implement the plan and reviews it every 10 years to address updated science, monitoring results, emerging issues, and local concerns.

How a plan could be tailored for the Nature Coast

Preserve programs can include educating boaters about how to prevent propellers from scarring and damaging seagrass, as seen in this area of the Nature Coast.

All of Florida's aquatic preserves share some common rules, including requirements to protect water quality. The Nature Coast Aquatic Preserve also is an "Outstanding Florida Water," a designation that is assigned to areas worthy of special safeguards and mandates the state's highest level of water quality protection. In addition to the standard rules, each preserve can have programs, research, monitoring, and other guidelines tailored for it.

Important elements of the Nature Coast preserve plan could include:

- **Baseline assessments.** Florida agencies have mapped more than 350,000 acres of seagrass habitat mainly through aerial observation and other remote sensing technology. However, scientists estimate that more seagrass could exist farther offshore in waters too deep to survey from above.[2] State agencies, academics, and local stakeholders can work together to create updated habitat maps and gather water quality data.

Field observations and new technologies can help develop comprehensive baselines for the health of existing coastal habitat, identify areas needing restoration, and determine the water quality criteria necessary to support vulnerable seagrass meadows.

- **Seagrass and water quality monitoring programs.** Seagrass can be damaged by pollution, and with more people visiting and moving to the area, runoff from roads, housing, and other development may fuel harmful algal growth and block the sunlight that seagrass needs. Further, the total population of all Florida coastal counties is expected to double from 2010 to 2060, magnifying these stressors.[3] Monitoring programs can provide the information that preserve staff and other resource managers need to consistently evaluate water quality and the health of the seagrass and to take corrective actions when appropriate.

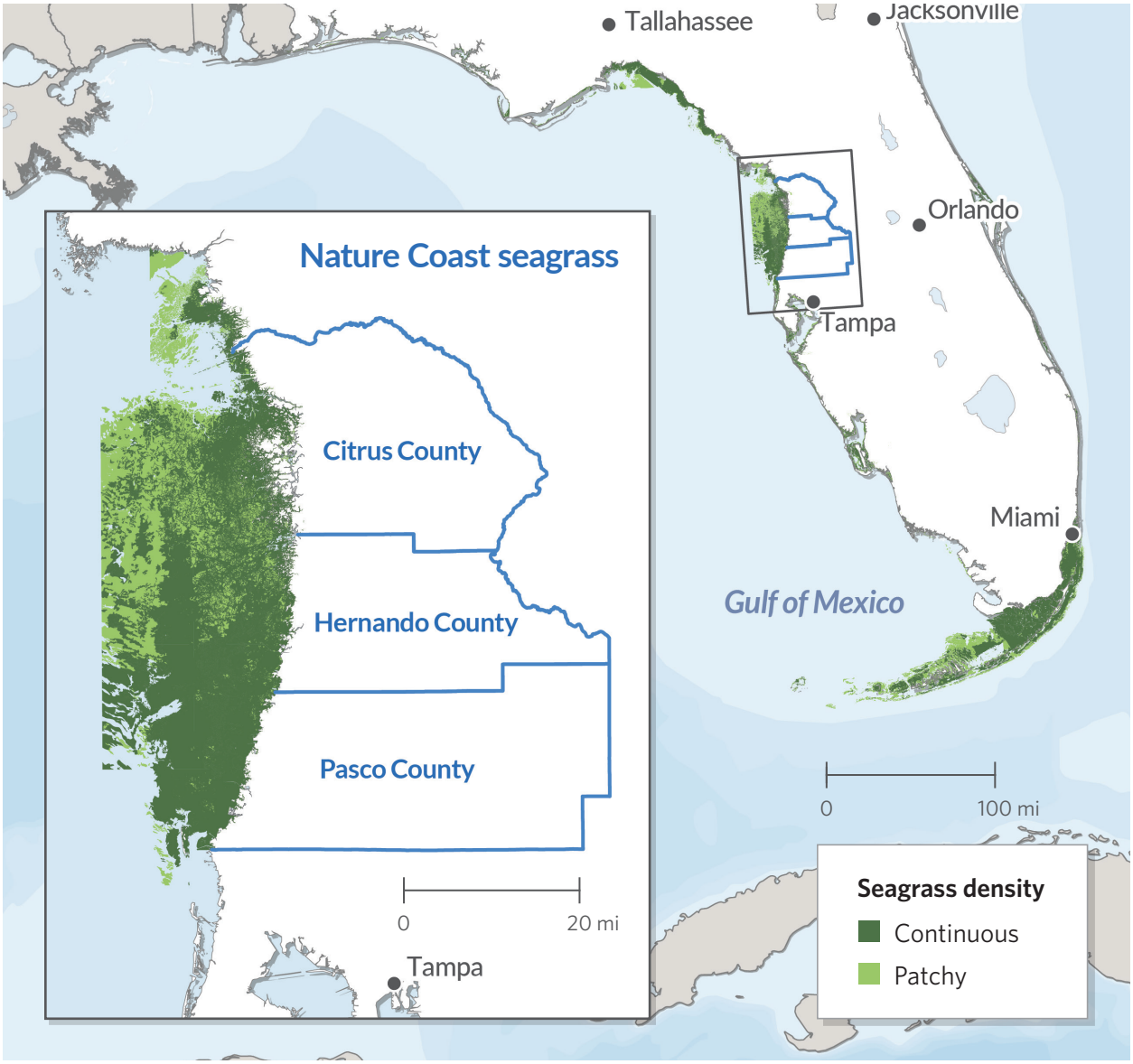
Preserve work includes water quality tests like these conducted by biologists and managers from the Florida Department of Environmental Protection in St. Martins Marsh Aquatic Preserve in Citrus County.

- **Boater education and outreach.** Vessel hulls and propellers can slice through seagrasses or rip up their roots, leaving barren channels known as "prop scars." Surveys from 1995 and 2018 indicate that as many as 40,000 acres of Nature Coast seagrass have experienced some prop scarring from careless boaters, and heavy localized scarring continues around several nearshore keys and river mouths.[4] Once scarring occurs, tides, storms, and algal growth can quickly deepen and widen the cuts, leading to further seagrass loss that can last for decades.[5] Working with the local community and businesses, preserve staff can develop programs and materials to educate boaters about how to safely fish and operate vessels to avoid damaging seagrass and other valuable habitats.
- **Habitat restoration.** Although the Nature Coast has generally fostered healthy and stable seagrass habitats, the beds are showing increasing signs of thinning. Preserve staff and local stakeholders can work together to design, fund, and implement projects to restore these meadows and provide ecological and economic benefits to coastal communities.

Figure 1

Florida Plays Host to Abundant Seagrass

Nature Coast provides ideal habitat for bountiful underwater meadows



Florida boasts more than 2.5 million acres of seagrass, including the largest continuous beds in the country. This map depicts known areas of seagrass, which extend at least 14 miles offshore. Scientists have not yet mapped potential areas farther out. Seagrass is light-loving and generally exists close to land in shallow water, but along Florida's Nature Coast, it is able to grow abundantly in deeper waters farther offshore because the ocean floor slopes gently and the water is clear.

Source: Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute (2016-2018), http://geodata.myfwc.com/datasets/seagrass-habitat-in-florida

Community partnerships help aquatic preserves thrive

The sun's rays nourish seagrass, which is home to a variety of marine animals, including tiny prey fish species such as these pinfish.

Stakeholder participation in drafting the management plan can also lay the foundation for long-term public-private partnerships between the preserve and local communities. For example, in nearby Charlotte and Lee counties, the community's work on management planning for the Charlotte Harbor and Estero Bay aquatic preserves included creation of the Charlotte Harbor Estuaries Volunteer Water Quality Monitoring Network. The network is a collaboration among the state, preserves, Charlotte Harbor Environmental Center, regional water management district, and Charlotte Harbor National Estuary Program, which have come together to support a group of more than 80 volunteers trained to monitor 19 water quality factors—such as dissolved oxygen, nitrogen and phosphorous levels, and water clarity—in 46 locations across seven estuaries.[6] Information gathered through the program supports improved resource management within the preserve and in surrounding areas.

Neighboring preserves hold lessons for the Nature Coast

Coastal forest and salt marsh found along Florida's Big Bend help buffer seagrass meadows from upland runoff and coastal development that could harm water quality.

The Nature Coast preserve connects with the St. Martins Marsh Aquatic Preserve in Citrus County and Big Bend Seagrasses Aquatic Preserve to the north. Together, this contiguous area is the largest spring-fed, seagrass-dominated stretch of coast in the world. In addition, the Nature Coast preserve's neighbors include the Boca Ciega Bay and Pinellas County preserves to the south.

The Big Bend Seagrasses preserve, established in 1985, spans nearly a million acres of coastal habitat and submerged lands, including more than 267,000 acres of seagrass, and is ecologically similar to the Nature Coast.[7] Big Bend stands as an example of how the state can keep largely pristine coastal ecosystems stable and healthy while also supporting increasingly popular outdoor activities, such as fishing, hunting, boating, and scalloping, that boost tourism. Preserve staff engage volunteers and fishermen on projects, including removing marine debris and derelict crab traps that impair coastal navigation and harm habitats, fish, and wildlife. Public education initiatives help encourage safe boating to minimize seagrass prop scarring.

The barrier islands, sandbars, and coastal dunes within the Boca Ciega Bay and Pinellas County preserves support an array of popular fish and migratory wildlife, such as these wintering coastal water birds.

Whereas the Big Bend Seagrasses preserve is in the state's least developed and populated areas, the Nature Coast preserve's southern neighbors, the Boca Ciega Bay and Pinellas County preserves, are located in one of Florida's most populous regions, Pinellas County. Lawmakers created the two preserves in 1968 and 1972, respectively, to halt dredging and filling of coastal habitats for development in the county. Together, the Boca Ciega and Pinellas preserves are known as the Pinellas County Aquatic Preserves, and they make up one of Florida's largest protected areas, including roughly 350,000 acres of upland, coastal, and open water habitats.

Pinellas County has a larger population than Citrus, Hernando, and Pasco counties—which are home to the Nature Coast preserve—combined. State environmental staff work closely with fishermen, academics, nonprofit organizations, local governments, and resource managers to update and implement the management plan for the preserves in a manner that balances a thriving marine ecosystem with the needs of the county's growing coastal communities. That includes collaborating with local residents, scientists, and students to conduct research, monitor resource health, and protect and restore coastal habitats. Despite continued heavy urbanization, coastal development, and boat traffic in Pinellas County, the preserve's conservation and restoration initiatives have helped protect more than 26,000 acres of seagrass beds and increase seagrass acreage by 10% from 2006 through 2016.[8]

And these conservation efforts have paid dividends for local coastal businesses. Seagrass habitat-dependent activities, including tourism, fishing, and boat manufacturing, generated more than $1.9 billion for Pinellas County, provided more than 39,000 jobs, and supported about 1,900 businesses in 2017.[9]

Scalloping is one of the most popular activities in the Nature Coast Aquatic Preserve, where management plans will need to strike a balance between human use and conservation needs.

In Kings Bay in the city of Crystal River, a manatee eats eelgrass, one of its dietary staples along with seagrass.

Conclusion

The Nature Coast Aquatic Preserve has the potential to protect the vital habitats and good water quality necessary to secure the way of life for local communities well into the future. Fishermen, boaters, eco-tourism operators, and other stakeholders will play an important role in the development and implementation of a management plan to best realize that potential. Long-term community support and engagement will ensure the preserve can effectively safeguard this special place, its resources, and the communities that rely on them for generations to come.

Endnotes

1 Office for Coastal Management: Digital Coast, "ENOW Explorer," National Oceanic and Atmospheric Administration, https://coast.noaa.gov/enowexplorer/#/.

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9 Office for Coastal Management: Digital Coast, "ENOW Explorer."

For further information, please visit:

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