

Rookery Bay *REVIEW*

July - December
2018



The official newsletter for
Rookery Bay National Estuarine
Research Reserve



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About Rookery Bay National Estuarine Research Reserve

Rookery Bay Research Reserve, located in southwest Florida, is recognized as one of the few remaining pristine, mangrove-forested estuaries in the U.S.

Designated in 1978 following a local, grassroots movement to save the bay, the reserve now protects 110,000 acres of coastal lands and waters between Naples and Everglades National Park. It is managed by the Florida Department of Environmental Protection, in cooperation with NOAA, and serves as an outdoor classroom and laboratory for students and scientists from around the world.

The Rookery Bay Environmental Learning Center includes a two-story visitor center with interactive exhibits, observation bridge, nature trail with creekside viewing platform, art gallery, nature store and more.

The Reserve's headquarters and Environmental Learning Center are located at 300 Tower Road in Naples.

For more information, visit www.rookerybay.org or call 239-530-5940.

SAVE THE DATE!

3/15 Friends of Rookery Bay's *Bash for the Bay*
4/22 Florida PBS Film Premiere: *Southwest Florida's Mangrove Coast*

Director's Message



Dear Friends of the Reserve,

Whew! That's what Rookery Bay staffers are thinking after the past six months. We are always busy, doing our best to research, protect and educate about the reserve, but this year, I think we have taken it to another level — and we have a lot of success to show for it.

As we ramp up our 40th anniversary celebration, we have been busy dusting off our archives, and it's exciting to see how far we have come. Looking back at the stories of how the Reserve came to be in 1978, and has since grown so much, reinforces the importance of our shared journey to take care of this amazing place. As the saying goes, "you can't know where you are going unless you know where you've been." Where we come from is a place and time where residents, scientists, activists, elected officials and even schoolchildren all said, with one collective voice, that they wanted to preserve Rookery Bay.

Forty years later, I am proud to say that goal has been achieved. Today, thanks to our community, we are tasked with the privilege of protecting and learning about Rookery Bay. And it is for that community that we work so hard, ensuring families can enjoy and explore Rookery Bay for generations to come. You are part of that community, and we thank you for your continued and future support of this special place.



Celebrating 40 Years!

In 2018, Rookery Bay turned 40! As part of this milestone celebration, staff have been working with Live Oak Production Group to produce a feature-length documentary. Filmmakers Elam and Nic Stoltzfus have traversed reserve lands and waters to capture footage showing, with amazing detail, what makes this place special. The film will highlight the reserve's story of how a vision to protect the fragile ecosystem between Marco Island and Naples grew to include partnerships with local families and conservation agencies, and continues to shine as a gem on the Southwest Florida coastline.

The film, called "Southwest Florida's Mangrove Coast," highlights Rookery Bay's past and present programs, and includes interviews with many people and partners who were instrumental in creating the reserve and continue to help the reserve meet its mission. Southwest Florida's Mangrove Coast is funded by the Florida Department of Environmental Protection with support from the Collier County Tourism and Development Council.



Slated to air on PBS stations statewide on Earth Day — Monday, April 22, 2019 — the film was previewed as part of Rookery Bay's National Estuaries Day celebration. Special guests included some of the local schoolchildren who, in the late 1960s, participated in the Pennies for Preservation conservation effort, which led to the designation in 1978 of Rookery Bay as a National

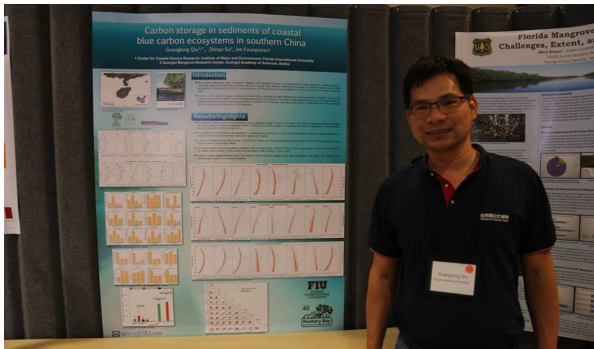
Estuarine Sanctuary and, shortly thereafter, as the third site in the new National Estuarine Research Reserve system.





Mangrove Symposium Shines a Spotlight on Local Research

Rookery Bay Research Reserve's first-ever Mangrove Symposium brought together 75 of the brightest minds in mangrove ecology. Discussion topics included trends and tipping points, ecosystem services, adaptive management and restoration ecology.



Plenary presentations were given by Drs. Ariel Lugo and Robert Twilley, two "founding fathers" of Rookery Bay mangrove research. There also was a poster session, a discussion about a future publication, and field trips to see a restoration site and other mangrove features around Rookery Bay. The event provided invaluable opportunities for coastal professionals to share resources and ideas for future mangrove management.



Event supporters included Florida International University, Florida Gulf Coast University's Everglades Wetland Research Park at Naples Botanical Garden and the Friends of Rookery Bay's 40th anniversary sponsors.

Educating Legislative Staff

In December, Rookery Bay hosted its biennial Legislative Day, engaging staffers from various Florida Senate and House of Representatives offices. The group met with business leaders from the community, toured the reserve by boat, ate lunch on the beach and interacted with marine life from a trawl net.

Participants gained a greater understanding of connections between coastal science, management and local economy, and learning about ongoing efforts at the Research Reserve to address coastal management issues.

During the event, two of the staffers recalled visiting the Reserve as students and shared their thoughts about the importance of that learning experience.





ROOKERY BAY

***Retrospective
1978 - 2018***



How the Reserve Took Shape

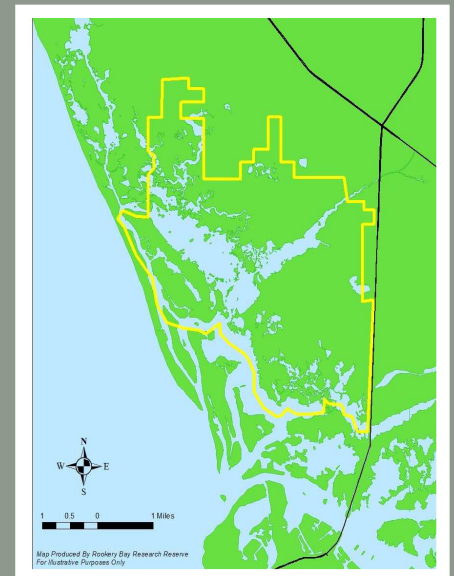
In the mid-1960s, the construction of a road was proposed through the undeveloped coastal area surrounding Rookery Bay. The road, which would have opened development opportunities in the pristine, mangrove-forested estuary, prompted citizens to form the Collier County Conservancy and engage partners from the National Nature Conservancy and Audubon Society. Together, they galvanized the community to raise more than \$300,000 for the purchase of 2,600 acres, creating the Rookery Bay Sanctuary.

In 1971, a second campaign engaged thousands of local schoolchildren to help raise \$600,000 needed to protect additional environmentally sensitive lands around Rookery Bay. In recognition of their efforts, a commemorative statue called “The Children’s Column” was placed along the shore of Henderson Creek on the land that was purchased with those funds.

In 1978, Rookery Bay Sanctuary became Rookery Bay National Estuarine Sanctuary and later Research Reserve. It was approved and designated by the state of Florida and the National Oceanic and Atmospheric Administration with just over 3,800 acres and a staff of three people to oversee research and education programs.

From 1985 through the 1990s, an aggressive property acquisition program started with the Florida Conservation and Recreational Lands (CARL) program. Ultimately, \$57 million was spent in the Rookery Bay project boundary area, acquiring land on Cannon Island, Keewaydin Island, Little Marco Island and other areas adjacent to the reserve. The largest was a 2,700-acre parcel on the north end of Keewaydin Island purchased for \$13.5 million, taking the Reserve up to a total of 20,000 acres.

Following the CARL program, Preservation 2000 allowed for \$300 million annually to be made available throughout the state for the purchase of environmentally sensitive lands in the Ten Thousand Islands.



Through the 1990s, the Reserve’s boundary continued to expand; first due to a final legal settlement with Deltona Corporation over their development of Marco Island, and second in 2003, when NOAA approved the addition of the Ten Thousand Islands area, resulting in the Reserve reaching its present size of 110,000 acres.

A Foundation of Friends

In 1987, the Rookery Bay Research Reserve had three full-time staff responsible for managing 9,000 acres. With such a small team, they quickly realized that additional support would be instrumental in helping them achieve their mission. They succeeded in establishing a local nonprofit friends group to help engage community volunteers and raise funds to support ongoing work at the Reserve.

The Friends of Rookery Bay started with a handful of residents. The original steering committee included a science teacher, a college professor, an attorney and a real estate agent. Early efforts sponsored by Friends of Rookery Bay included some interesting fundraisers, such as a 24-hour “Moonlight Madness” relay in which board members and Rookery Bay staff participated as relay runners. Local businesses donated funds on a per-mile basis.



Today, with about 800 members, the Friends of Rookery Bay is one of the largest citizen support organizations in Florida. Friends now plays an instrumental role in working directly with an expanded Research Reserve staff and boundary to help ensure that sufficient resources continue to be available to help accomplish the Reserve’s mission. Over the course of 30 years, the friends group has evolved and gained expertise in fundraising and partnership development.

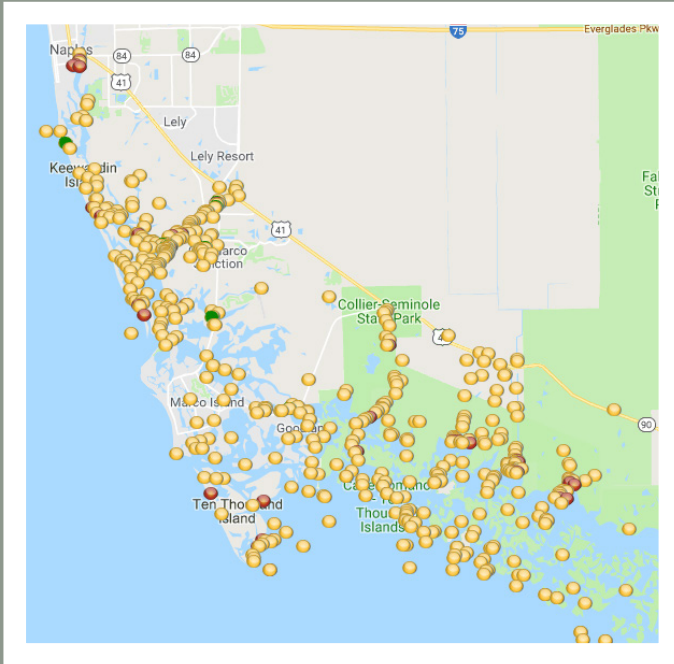


Another important aspect of the Friends of Rookery Bay is its capacity to help recruit and sustain active members from the communities of Naples and Marco Island. Many friends members volunteer their time and receive training to assist staff with a variety of programs, including: sea turtle monitoring and shark research in the Ten Thousand Islands, teaching students in the Environmental Learning Center about estuaries and assisting maintenance staff with work projects.

Volunteers annually donate more than

14,000 hours, providing a financial benefit equivalent of more than \$300,000 to the reserve, providing critical matching funds as required by granting agencies.

Serving the Science Community for 40 Years



Rookery Bay Research Reserve provides an opportunity for visiting scientists to conduct research in a “living laboratory.” Over the years, more than 200 visiting scientists from 90 agencies, including nonprofits, universities and government agencies, representing nine countries have conducted research here to earn undergraduate and graduate degrees, teach and work.

The visiting scientist program is beneficial for everyone, as reserve staff learn valuable information about the ecosystems and potential tools to help in the management of state lands while researchers gain experience and advance their knowledge.

Highlights of studies conducted over the years include:

- Research on Kemp’s ridley sea turtle habitat use in the Reserve led to the release of more than 100 Ridley sea turtles after the oil spill in 2010 (Jeff Schmid, Conservancy of Southwest Florida).
- Radio telemetry equipment used to track Burmese pythons led to a successful management strategy for removing breeding snakes (Ian Bartosek, Conservancy of SW Florida, and Paul Andreadis, Denison University).
- Drs. Bernie Yokel, Ariel Lugo and Robert Twilley conducted some of the earliest research on mangroves in the United States at Rookery Bay. The research done by Dr. Yokel was critical to establishing Rookery Bay as an estuarine sanctuary. These studies provided a foundation for a multitude of other mangrove studies in Rookery Bay including forest structure and recovery from hurricanes, nutrient and water cycling, food web links and carbon storage.
- Shark studies by international Ph.D. students provided valuable information on field techniques and site-specific location data for reserve staff to begin the current juvenile shark assessment program. Veterinarians from Georgia and Florida Aquariums collaborated with the shark assessment project, learning and lending tips and protocols benefiting all organizations. Three peer-reviewed manuscripts were published from that collaboration.
- The aquatic acoustic telemetry tagging program has attracted outside collaborators from NOAA for fish and endangered sawfish, FL Fish & Wildlife Commission for goliath grouper and Florida International University for snook, tarpon and sharks. This program is now part of the iTAG network of acoustic telemetry researchers across the Gulf of Mexico.



Staff use Geographic Information System (GIS) technology to ensure that projects aren’t affected by other researchers or management activities. An interactive map enables anyone to learn about the research projects underway at RookeryBay.org.

Strike Team Assists with Hurricane Michael Recovery

Following Hurricane Irma in 2017, a team of staff from Apalachicola National Estuarine Research Reserve (ANERR) came to assist Rookery Bay with recovery efforts. This year, the favor was returned.



After Hurricane Michael devastated Florida's Panhandle, five members of Rookery Bay's staff were at the ready. The team brought a convoy of equipment including a dump truck, track loader, many chainsaws and other supplies to remove trees and storm surge-driven debris from the conservation lands of ANERR and the St. Joseph Bay Buffer Preserve.

In addition to clearing trees from around ANERR's dormitory and nearby Millender Park, they cleared fire lines and helped an employee clean up and begin to repair their surge-damaged home. During this effort, Rookery Bay staff also helped remove nearly 30 gallons of hazardous household materials from the buffer preserve, including fertilizer, bleach, paint and pesticides.

Engaging Students in Marine Science

In August the Summer Institute for Marine Science invites students entering grades 8-10 with an interest in marine science to participate in a special opportunity to learn about the coastal environment. Twelve campers gained field experience and met scientists from Rookery Bay Research Reserve and partners at Conservancy of Southwest Florida, Vester Marine Field Station, Tigertail Beach, Marco Island Historical Society and Mote Marine Laboratory & Aquarium.

Now in its second year, this weeklong program brings students into the estuary for hands-on experiences relating to ecology, marine biology, sustainability and citizen science.

Onsite activities included kayaking, mudflat exploration and pulling a trawl net behind a research reserve vessel to learn about the animals of the Rookery Bay estuary. The campers also attended field trips to nearby environmental centers. This program was made possible with funding support from the Friends of Rookery Bay and the Community Foundation of Collier County.



MEGAFAUNA MOI

Record-Breaking Year for Loggerhead Sea Turtles at Cape Romano!



Photo by Nic Stoltzfus

When reserve staff and interns completed their assessment of nesting efforts for the 2018 sea turtle nesting season, it was clear that something exciting had happened at the Cape Romano Complex — more than 10,000 loggerhead sea turtle hatchlings made their way from their nests to the sea. That is nearly twice the number of hatchlings recorded in any prior year since monitoring and nest caging began in 2006.

The total number of hatchlings to emerge from 146 nests this year was 10,752, with an estimated 74 percent emergence success. Since 2006, the highest number of hatchlings to emerge from nests at the Cape Romano Complex was 6,046 in 2014. Staff can't say for sure why so many hatchlings emerged this year, but it was likely a combination of storm event timing and less trash being left on the island.

"We have noticed that beachgoers along the Cape Romano Complex have been doing a great job of picking up after themselves," Sea Turtle Nest Monitoring Coordinator Sarah Norris said. "Anything people can do to prevent predation and obstacles on the beach helps ensure nesting females and hatchlings make their way to the water safely and efficiently."

Studying the Secrets of Shark Survival

Rookery Bay's research team has made great strides in the acoustic monitoring program established in 2017. One evening in May, the team caught and a female newborn shark in Fakahatchee Bay in the Ten Thousand Islands. This shark was the perfect specimen to be fitted with an acoustic tag to help scientists

learn about shark behavior: whether newborn sharks found in bays with higher salinity levels will instinctively move to fresher waters in order to evade predators.

The day after she was released in Fakahatchee Bay, her acoustic tag pinged the receivers in Faka Union Bay, which is consistently flooded with fresh water from the Faka Union Canal. The receivers indicate that the young shark wandered



Photo by Deborah Woods

MONITORING

all around that bay and then headed up the canal toward the tidal creek's freshwater source. She stayed there for 44 days until July 7, then returned to Faka Union Bay for a brief period. When salinity levels rose with an incoming tide, she returned to the fresher tidal creek again. For less than one day on July 30, she swam around the bay before again returning to the canal for the next 21 days.

The acoustic data confirms that she moved back and forth between the tidal creek and the bay several times in July and August, but there is much more to learn from this young shark. The research team is now using GIS to produce a pictorial view of the shark's movements in correlation to salinity changes and other conditions to better understand her behavior.



Learning About Dolphins in Rookery Bay

Photo by Mote Marine Lab



Rookery Bay Research Reserve is partnering with Chicago Zoological Society's Sarasota Dolphin Research Program (SDRP) on a three-year project in and around reserve waters. Scientists are working to estimate the population size of bottlenose dolphins in the region and build a photographic-identification catalog of identifiable individuals.

During their weeklong survey in October, staff assisted the team in observing 69 unique groups of dolphins, and recorded an estimated 466 individuals, including 32 calves born in 2018.

Sightings also included an observation of Skipper, a dolphin that SDRP staff had disentangled from fishing line and released in 2014. Reserve staff participated in that recovery effort as part of the southwest regional Marine Mammal Stranding Network.

Information collected during this and future studies can be used to monitor the health of dolphins in the region and better assess the effects of persistent threats, such as boat strikes and entanglements, as well as possible events such as oil spills and red tide.

Photo by Karen Henrichsen



Rookery Bay Research Reserve

300 Tower Road

Naples, FL 34113

rookerybay.org

239-530-5940

