Student Reading

Mangroves

Worldwide, more than 50 species of mangroves exist. In Florida, we are lucky to have three species that call our peninsula home! The red, black and white mangrove can all be found in different places within the Sunshine State. Mangroves are often found along coastal areas and in shallow flats, thriving in the salty water by using special adaptations that allow them to absorb fresh water in various ways. In Florida, white mangroves are rooted higher up on land, while red mangroves sit almost fully submerged in deeper waters, and black mangroves grow in the shallow waters in between. Each species lives in its own specific habitat, and they all help their surrounding environment in different ways.

Red mangroves are nicknamed "walking trees" because the roots capture sediments, making the depth shallower so they can stretch farther out into the water.

Red Mangroves

Mangroves tend to grow in specific depths of water or along the shoreline, with the red mangrove usually growing deepest in the water. You might recognize the red mangrove by its "legs," which are the prop roots that help anchor it into the sand and keep it stable. Those roots help keep the plant firmly in the sand during storms such as hurricanes, and keep the branches and leaves above the water. Mangrove roots also help to retain sand, keeping it in place even when water is moving all around it. Removing mangroves means the sand becomes loose and free to drift away. This may not sound like a big deal, but when large numbers of mangroves are removed from an area,

Mangrove roots make great hiding places for small fish.

Young red mangroves colonize calm shallow areas that are often dry at low tide.

large amounts of sand – even entire beaches – can wash away in a process called erosion. Mangroves are one of the best lines of defense in protecting areas from tropical cyclones, and they do a great job of preventing erosion.

Red mangroves are also special because they can live in areas that have salty water. This would kill most other plants. Red mangroves do this by excluding salt as they take in necessary water through their roots, which allows the plant so take in enough water to support growth, while keeping the salt concentration low enough to allow the mangrove to survive. Red mangroves are called "salt excluders", in contrast to black mangroves and white mangroves, which use a different strategy and are called "salt excreters".

Red mangroves, however, have another important purpose for the animals living in and around the mangrove community. The complex maze of prop roots below the surface of the water create an amazing resource for fish in their smallest stages. Many different species call red mangrove legs or limbs "home," or at least use them to hide from predators. Birds, fish, shrimp, crabs, and so many more organisms call them home. Mangrove crabs scuttle across them and baby snook hide around the tangled roots. Little blue herons and brown pelicans nest in the tops of their canopies. You might find mangrove snappers dashing back and forth through them at high tide, and puffer fish swimming around eating algae off the roots. Mangroves offer a safe place that physically keeps out predators, while providing lots of food and activity for many different creatures.

Shallow mangrove creeks like this one are great habitats for juvenile snook and tarpon. Small forage

Mangroves don't just guard against erosion. They also help a shoreline "accrete," or build up, and actually catch sand and leaves that might fall and grow the shoreline larger. A small sandbar today might be an entire island in 50 years if mangroves take root.

Red mangrove seeds are unique too. They are long and very skinny. These seeds, called propagules, grow on the tree near the

leaves and have a soft fleshy inside. When the seeds are ready to grow into new trees they fall off the mangrove and can travel to a new place and grow their roots. What would be the best way to travel if you're a seed from a tree that lives in the water? These seeds are able to float! Propagules are unique to this amazing tree.

Black Mangroves

Black mangroves can also be found growing in saltwater, but typically shallower than red mangroves and closer to land. In the shallow waters right next to land, water does not usually move very much; it gets very hot, and as a result, is low in oxygen and really salty! This creates a harsh environment that is difficult for any plant's survival, but black mangroves have unique features that allow them to grow well in these habitats. The black mangrove has special types of roots, called pneumatophores, that actually take in oxygen so that the tree can live in such a harsh environment! These roots act like "snorkels" by taking in oxygen for the black mangrove, and also help to accrete sand and sediment too.

These roots, called pneumatophores, allow black mangroves to breathe air.

The black mangrove has another special feature that allows it to grow well in the salty water. The leaves of black mangroves push out salt, or "sweat," through special salt pores found on the leaves. The reason for doing this is simple: all plants need water to survive but the black mangrove lives in really salty water. So for the tree to thrive in this environment, it takes in the saltwater around it through its roots and then pushes the salt out of the water, keeping only freshwater for it to live off of. Pretty amazing!

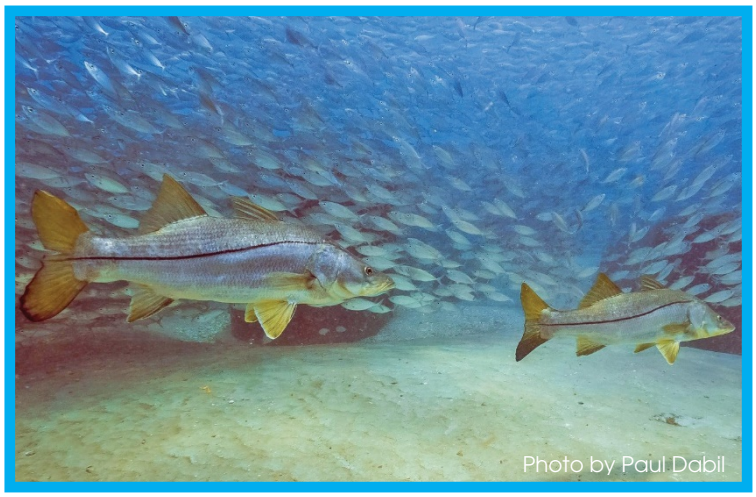
Each type of mangrove has a different type of leaf. Red mangroves have round, dark green leaves. Black mangroves have pointier, silvery leaves that are often speckled with salt. White mangrove leaves are light green and round, with fuzzy white undersides.

White Mangroves

The next type of mangrove found in Florida is the white mangrove. This species grows the highest up on the shore and further away from the water. This mangrove is the least able to handle cold weather so it is mostly found from Central Florida southward, in warm, tropical areas. The white mangrove has soft leaves that have a white fuzz on them, which is where it gets its name. The white mangrove, similar to the black mangrove, also sweats out salt.

Threats

Mangroves are vital to the survival of so many species that are fun to catch and eat, and are important to the coastal ecosystem. Mangroves act as a nursery for fish, crustaceans, birds and more, and removal of mangrove communities can harm habitat health. Not only do these communities stop erosion and protect coastlines, but fish species that are popular among catch-and-release fishermen around Florida – such as snook and tarpon – rely on these ecosystems as safe places to grow up.



Snook are a species that uses mangroves a lot when they are young. As adults, they are really popular catch-and-release fish.

Unfortunately, mangroves are under threat across the world. In the past, the important role that mangrove communities play in habitat health was not well known, so mangroves were cut down to make room for beaches and houses. Out of all of the mangroves around the world, about 35 percent have been removed, and about two percent of existing mangroves still disappear every year. In Florida, about half of all mangroves have already been lost. Luckily, we have learned more about how helpful mangroves are through scientific studies and observations, and now there are laws to protect mangroves and keep them healthy. Today, cities and towns along with the state have created laws that limit further removal of mangroves, imposing fees and even jail time if you illegally cut or trim mangroves. Over 80 percent of the mangroves living in Florida today are protected by laws.

Other issues, like pollution, can still harm mangroves even though they have not been cut down. Researchers are still learning about how fertilizers, medicines, and other human products that end up in the ocean might hurt important habitats like mangroves. The more we learn about mangroves, the better we can take care of them. And since mangroves are important homes for small snook and tarpon, taking care of the mangroves means we will see more fish in the ocean, and catch more on our fishing lines!

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