

## Seagrasses Meadows of the Laguna Madre

Article & photos by Joseph and Nellie Kowalski, Rio Grande Valley Chapter

There's something almost sacred about hiking through forests. It can evoke the same sort of reverence as walking beneath the vaulted ceilings of ancient cathedrals. Perhaps it is how the stout trunks rise, meshing and weaving canopies together, one tree to the next. As joined canopies rise above the forest floor, branches become ever smaller. In the canopies, varied species of birds and insects find food and protection from predators. Though we in the Rio Grande Valley are far from the vaulted ceilings of tall canopies, we do have forests in our midst: the underwater forests in the Laguna Madre.

Until the Texas Department of Transportation decides to build another bridge to get to South Padre Island, the Queen Isabella Causeway is the only way to cross the Laguna Madre. For the time-being it's the only way to get across. For the most part the mother lagoon begins at the bridge at the Brazos-Santiago Pass. If the tide is coming in, water from the Gulf of Mexico pushes into the lagoon on a high tide and the water appears as if emeralds have been squeezed of their color. A few hours later on a low tide, the moon and sun conspire and pull muddy tidal water from the Laguna Madre back out to sea. And so it goes on a daily basis.

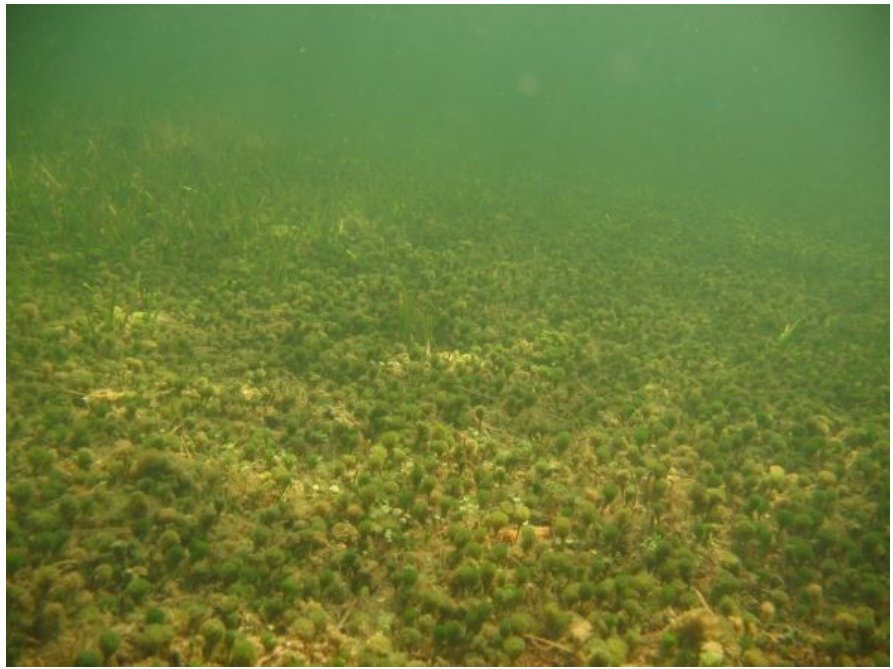
The eastern part of the Laguna Madre, which reaches a depth of a half meter (20 inches) to one and a half meters (60 inches), provides much light and visibility. Many species of plants use this light, creating the diversity that forms seagrass meadows which resemble underwater forests. Below the water of the bay live layers of vegetation, just as in land forests, except these are on a smaller scale.



Mosaic of vegetation types in a seagrass meadow, Laguna Madre, Texas. Shown are the seagrass, *Thalassia testudinum* (turtle grass), the small bladed *Caulerpa mexicana*, and *Acetabularia crenulata*. (Mermaid's wine glass) in the Laguna Madre.

Varied seagrasses form the topmost layer, the canopy, which provides shelter to many animals, vertebrates and invertebrates alike. Swimming juvenile animals, trout, redfish, rays, sea horses and crabs move around and hide in the plants, much the same as birds hide in the canopies of the land forest. Some of these animals consume the seagrass leaves directly, while others, such as snails, glide up and down the leaves grazing on bacteria and other one-celled organisms, some photoautotrophic (those that can make their own food), others, not.

In the intermediate layer of the underwater forest live algal species, like Neptune's shaving brush, which resemble the bushes growing closer to the ground. Another algal species called Mermaid's wine glass resembles a cup used by royalty.



Broad field of *Penicillus capitatus* (Neptune's shaving brush) with *Thalassia testudinum* (turtle grass) in the background.

The bottom layer of the seagrass forest is composed of sediment and detritus, bits and pieces of what was once living matter, that can be compared to dead leaves that accumulate on the forest floor. For some marine animals, this is a feast of leftover scraps on a banquet hall. Hermit crabs cruise along the sediment, feeding on anything that can be called food. Worms and clams, live mostly buried in the sediment, sharing room with seagrass rhizomes and roots. Some snails prey on the clams by drilling holes in the shell and eating the flesh within.



(left) Bed of *Thalassia testudinum* (turtle grass) over-topped by drift algae (*Laurencia poiteaui*) with the omniverous pinfish (*Lagodon rhomboides*). (right) A detailed image of *Penicillus capitatus* (Neptune's shaving brush) with curious pinfish; note the sediment detritus where the plant attaches.

As you can see, forests grow not just on land, but in unique and unexpected environments like the bay. If the second bridge over the Laguna Madre is ever built, it will open a new destination to don your swimming togs and face mask (No... not the Covid-19 kind) and discover a place of beauty and fascination as you explore a seagrass meadow.