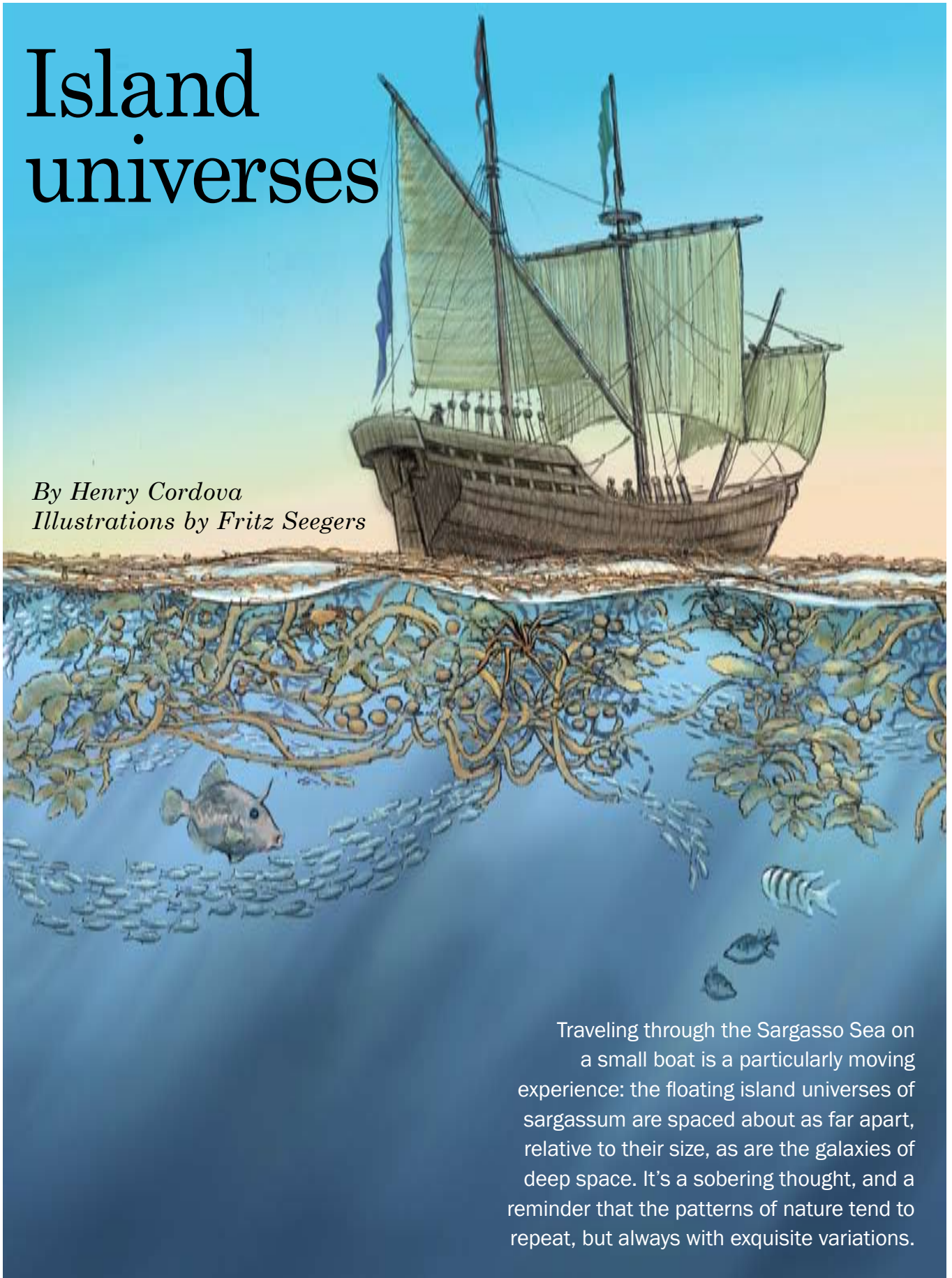


Island universes

*By Henry Cordova
Illustrations by Fritz Seegers*



Traveling through the Sargasso Sea on a small boat is a particularly moving experience: the floating island universes of sargassum are spaced about as far apart, relative to their size, as are the galaxies of deep space. It's a sobering thought, and a reminder that the patterns of nature tend to repeat, but always with exquisite variations.

When I was in high school, I was awarded a National Science Foundation grant and spent a summer interning at the Cape Haze Marine Laboratory, then located in Sarasota. The laboratory's director, Dr. Eugenie Clark, specialized in shark biology and most of the lab's activities were centered on studying those fascinating creatures.

The other interns and I often went along on the collecting boat's trips to big trot lines set well offshore to catch bull, lemon and tiger sharks. The trots were long lines with one end anchored to the sea bottom and with a float on the other end so they could be recovered and the fish harvested. It was an exciting job and every effort was made to bring the sharks back alive to the lab for behavioral studies.

It was a long ride to the trots, and to pass the time and add to the educational experience, Dr Clark suggested we collect some sargassum, or gulfweed, and inventory the small creatures making it their home. Although most common in the Sargasso Sea, the part of the Atlantic roughly coinciding with the infamous Bermuda Triangle, gulfweed is often found floating in Caribbean and Gulf waters, as well as far north as New England.

The captain located a floating mat and we brought it aboard and threw it into a big collecting pan half-full of fresh sea water. The interns and graduate students gradually began removing the weed, carefully

shaking it out so all the tiny critters living in it fell away and stood out in contrast against the white porcelain.

It was a revelation to me. The weed was home to a thriving community of tiny animals, crustaceans and molluscs and other little beasties, all camouflaged to match the mottled yellow-brown of the weed. The floating mats were a little world, populated by bizarre inhabitants perfectly adapted to living on it and in it while the plants slowly drifted on the deep blue sea.



As a Florida boy, I was familiar with sargassum; it was a normal part of going offshore fishing or spending a day at the beach. The weed tickled and made your skin itch if you brushed against it. It fouled fishing tackle and got tangled in outboard motors. I knew game fish like dolphin (*Coryphaena hippurus*) patrolled the weed in search of bait fish huddled in the plants' shadow as they floated in the hot sun. Anglers knew this too, and liked to troll by the mats in

the hope a large fish would dart out and take their lure. In spite of my long familiarity with the plant, I never guessed it was more than just a nondescript piece of vegetation.

Along with tiny fish, crabs and shrimp and other assorted creepy-crawlies, the weed also hid a resident monster. Exposed in the white collecting pan was the alpha predator dominating its tiny world. The sargassum fish, *Histrio histrio*, is small, at most 8 inches, and perfectly harmless to humans. It is as

fierce as it is ugly – a squat little creature that prowls the weed devouring anything smaller than itself, including its own young. Fantastically-colored and shaped to match the weed, it is a clumsy swimmer and prefers to crawl about the stems on stubby fins, attracting its prey with a fleshy lure on top of its head. Its skin is mottled and spotted to look like gulfweed, and its body is adorned with lobes and flaps and warts

that simulate the shapes of the plant and the multicolored colonies of algae, corals and other encrusting organisms that have evolved to flourish on it. Like a chameleon, the little fish can change the color of its skin to help it blend in.

The genus *Sargassum* is a widespread and common set of related brown algae, found in all the world's oceans. Many species live rooted to the ocean floor, a few float freely on the open sea. As a young sailor crossing the

Pacific on a destroyer, I remember seeing great mats scattered across the endless blue sea, but I never got a close look. The Atlantic cousins include two closely-related species, *S. natans* and *S. fluitans*. Their habitat is the center of the great clockwise gyre of ocean currents that dominate the Atlantic between Africa and North America. Floating objects tend to collect at the center of this planetary whirlpool, which creates a stable environment for these remarkable algae. Ocean currents and winds disperse the sargassum along both coasts of Florida and north along the North American coast until cooler water kills it and its hitchhikers.

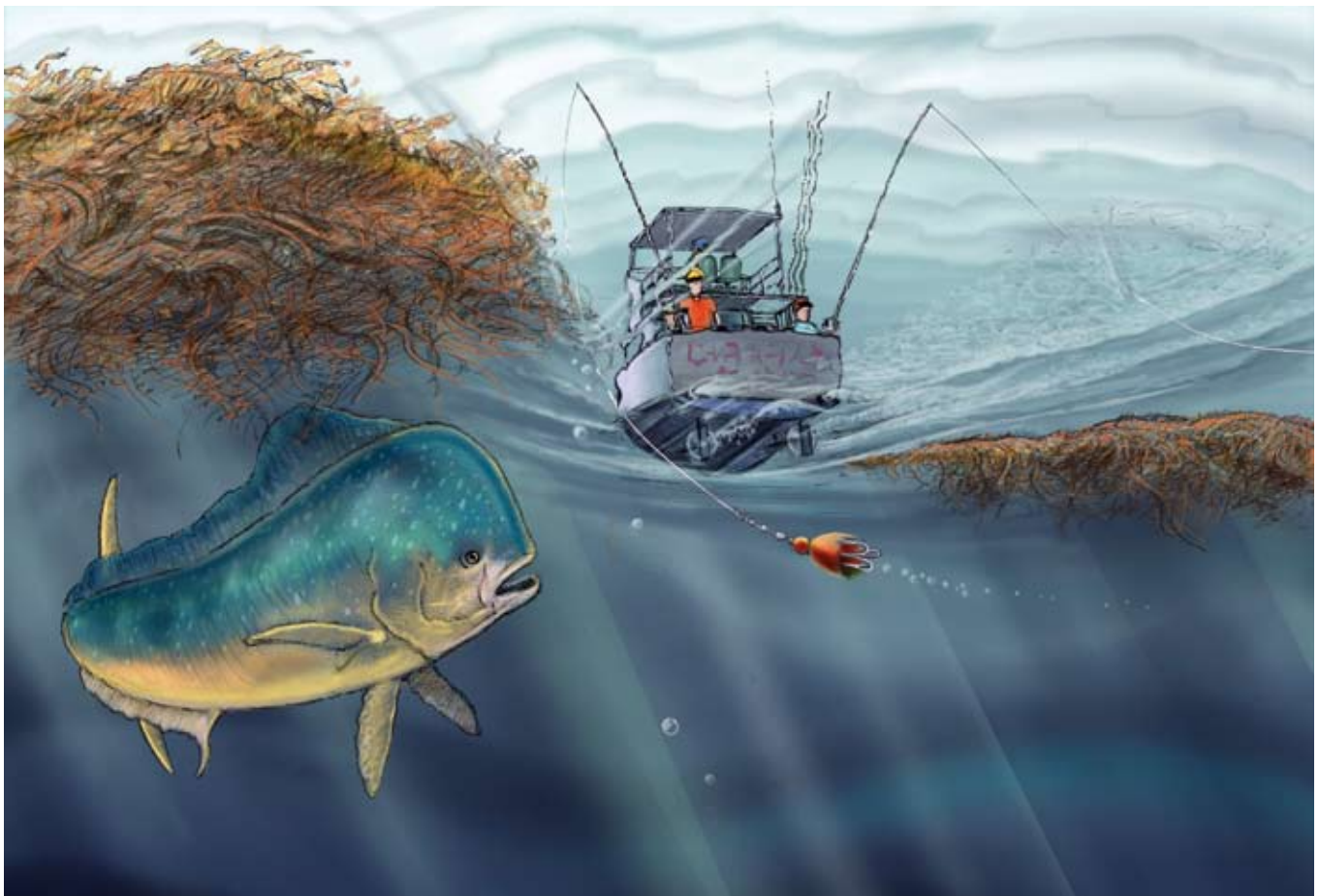
The organism is perfectly adapted to this desolate sea. Both floating forms lack roots or holdfasts but have developed tiny floats, little gas-filled bladders, to keep them at the surface near the life-giving sun. Their name

originates from these floats, which resemble a common form of Portuguese grape, and it was so named by the early mariners of that seafaring nation.

Supposedly, early sailors were terrified of the weed, afraid their ships would become entangled and helpless. This is not likely, as the mats are usually small, less than a few yards across, and generally several hundred feet apart. Sometimes, under the influence of the wind, they form strings several miles long, but not dense enough to trap a small yacht, much less a ship. A small sailing vessel might occasionally get sargassum entangled in its rudder, but that is easily remedied. Still, you can't blame the first sailors on these seas – seeing mile after mile of floating weed for weeks, even months at a time, must have seemed just one more thing to worry about.

The heart of the Sargasso Sea is one of the largest environments on the planet – several million square miles of very deep ocean – but it is not hospitable. Any floating object quickly becomes an oasis in this desert, from driftwood to plastic cups, and once things are swept into the whirlpool, they tend to stay. The gulfweed is nature's exception, and over time, life has evolved to seek out its shelter. Many organisms are associated with it, such as the sargassum crab (*Portunus Sayi*), the sargassum sea spider (*Endeis espinosa*) and the tiny sargassum snail (*Litiopa melanostoma*). Many of these creatures don't look much like animals, such as the bryozoans, corals and colonial ascidians that encrust the weed and feed off the thin plankton soup the raft rides in.

Small fish visit the sargassum mat seeking food,





shade and cover from predators. The weed may provide sanctuary for young sea turtles until they become large and mobile enough to survive in the open. The plant also plays a role in the development of eel larvae.

Many years after my first encounter with the sargassum fish, I found myself once again sailing the waters of my home state. I was on my honeymoon and my new bride accompanied me on a fishing

trip to the Florida Keys. She was a Pittsburgh girl and this was all new and wonderful to her. I pointed out clumps of weed floating about the boat, and asked the skipper to come alongside one so I could bring it aboard. Scooping it up, along with some water, I dumped it into a large bait bucket. I proceeded to separate and shake out the weed, leaving it on the deck but allowing its living cargo to remain in the bucket. It was

a round up of the usual – tiny crabs, shrimp, fish and shells, and unexpectedly, a full grown sargassum fish. With its splendid camouflage, we had almost overlooked it. I was surprised to get this lucky twice in my life.

After admiring the befuddled passengers in the bucket, we carefully placed the weed back in the sea and poured the contents of the bucket on top of it, so they too could resume their journey. **FW**