



Aquatic Gems is a compendium of aesthetic and scientific investigations of water.

Central to the exhibit are stunning videos and still images, captured by Robert Sitler (Professor, World Languages and Cultures), which immerse you in the otherworldly beauty of a variety of spectacular aquatic sites within a 30-mile radius of DeLand and the Stetson University campus. Complementing the affecting imagery, and drawing from her research on spring ecology, Kirsten Work (Professor, Biology) has created displays of freshwater snails, as another way to understand our valuable and vulnerable water resources.

ABOUT THE VIDEOGRAPHER

Robert Sitler is a Professor of World Languages & Cultures at Stetson and currently serves as Director of its Latin American Studies Program. He is a lifelong environmentalist who first fell in love with springs learning to free-dive in the brisk waters of Barton Springs in Austin while finishing his PhD in Hispanic Literatures at the University of Texas. He has enjoyed a multi-decade connection with numerous contemporary indigenous cultures in Latin America, the Maya in particular, a profound bond that has further heightened his appreciation of the natural world and clean water. In the 22 years that Robert has lived in DeLand, he has observed notable degradation in our local aquatic resources and this Aquatic Gems exhibit aims to awaken public interest in establishing stringent conservation measures that will protect these live-giving waters for future generations to enjoy.



Robert Sitler
Professor, World Languages & Cultures

What kind of equipment do you use?

Over time, I have become more and more of a minimalist. When I go out to film, I carry around a small Canon PowerShot Elf 330HS camera in my pocket and an equally tiny GoPro video camera. I do not even know how to use scuba gear and the relatively warm Florida waters allow me to avoid a wetsuit. Apart from my little cameras, my only other gear is a rather flimsy tripod that I use when I want a stable underwater image. Our adult children surprised me with a quadcopter for my 60th birthday and, while I'm hesitant to use it out of concern for disturbing other people enjoying nature, some of the bird's-eye view images have been stunningly beautiful.

How did you choose the images for this exhibit?

How are these waterways like gems?

Mayan languages do not distinguish between what we call blue and green. Instead, they refer to a range of hues that refers broadly to colors ranging from the blue of the sky to the greens of verdant tropical vegetation. I am most drawn to photographic and video images that highlight this broad spectrum of color in our local waters. The colors are particularly alluring when in continuous motion as the water emerges from local springs.

Clean water is every bit as valuable as a precious stone. Both gems and water reflect and refract light in ways that can dazzle human eyes with extraordinary beauty and potentially inspire us into an enhanced appreciation for the natural world and life itself.

Why did you explore a 30-mile radius of DeLand?

I want my students and the local public to understand better how astoundingly beautiful our local waters can be if properly cared for. Many people who live or visit here go to the attraction parks, the condo-strewn coast, or the local malls. Relatively few are more than superficially familiar with the extraordinary variety of local aquatic systems that include massive springs, extensive wetlands, richly biodiverse estuaries, lakes, the Atlantic Ocean and the St. John's River, all within this relatively small radius. I hope this project helps to develop greater sensitivity to the fragility of these aquatic systems so that we can take concrete steps to bring about their restoration.

What practical steps can we take to protect our local “aquatic gems”?

In landscaping, only use plants that are native to our area and that do not require artificial irrigation or fertilizer. Stop the application of artificial pesticides, herbicides, and fungicides. Help enact bans against irrigated turf. Florida has abundant, well-adapted native vegetation that can be maintained with rainwater alone. The issue of leaking septic systems must also be addressed.

ABOUT THE AQUATIC BIOLOGIST

Kirsten Work is a Professor of Biology at Stetson, and has been studying snails off and on for 15 years. Because of her interest in exotic species and the effect of these species on the invaded systems, much of her research has been on the Malaysian trumpet snail, *Melanoides tuberculata*. This species is one of the most abundant aquatic exotics in Florida. Kirsten has studied its population biology, and, thinking about how it might impact spring systems, its capacity for nutrient recycling in Florida springs. Recently, she has added studies of Florida apple snail impacts on eelgrass, and hopes to begin studies comparing native and exotic apple snails next summer. She has also surveyed snail abundance and distribution in Volusia Blue Spring for the Minimum Flow and Level project.



Kirsten Work
Professor, Biology

How did you collect the snails?

Snails are among the easiest animals to collect, with the exception of adult apple snails. For some of the snails, I just grubbed around in the sand and picked out the snails, or I located them by eye if they were sitting on top of the substrate. Sometimes I caught them by following their snail trails. I picked some of the smallest snails out of samples of algae I had taken; they often will crawl out of the algae, and then I can pick them off the top. Though adults apple snails are hard to collect, their eggs are easy to find. They lay them on emergent vegetation along the edge of lakes and in wetlands. So for those, I just snipped off the leaves that had eggs, and then waited for them to hatch in the laboratory.

Would you consider snails “gems,” that is, treasures of a sort?

With an array of shell sizes, shapes, and colors, snails are aquatic gems. Under the microscope, they are beautiful and graceful. Once disturbed they pull into their shells, but if left undisturbed for awhile, they will slowly peek out, showing the tip of their foot first and then uncurling their antennae to begin “smelling” their near vicinity. Once satisfied that their area is safe, they will take a slow tour of their habitat, looking for food or shelter.

What can we learn from snails?

Florida springs are unique systems that provide a link between the Florida aquifer and our local surface waters, like the St. Johns River. These systems are in some ways harsh—with very low oxygen at their headsprings, and in some ways stable—with constant flow. As such, they provide refuges from temperature extremes for migratory species, like Florida manatees and tarpon, and reservoirs of evolution for species that are unable to migrate far. Most snails are in the low-migration category, and they fall in the middle of the food chain; therefore, they provide an opportunity to study the health of Florida springs. These snails are born, live, and die in the springs—and do so fairly quickly—so disturbances to springs can often be indicated by the state of local snail populations.