Florida’s Ranchland Water Solution – 2018

The next time it rains in central Florida, some of that water will likely flow across a cattle ranch on its way to Lake Okeechobee. Ranchers are working with South Florida Water Management District to hold back (retain) water in some of the ditches and wetlands on their property during the wet season. Archbold Biological Station’s MacArthur Agro-ecology Research Center (MAERC) (Buck Island Ranch) is participating and monitoring this program called the Northern Everglades Payment for Environmental Services (NE-PES).

Researcher Steffan Pierre on a platform designed to keep his feet dry while performing maintenance on NE-PES monitoring equipment. Photo by Dustin Angell.

Dr. Betsey Boughton, director of research at MAERC says “The NE-PES program aims to pay ranchers to hold and slow water as it moves across ranches toward Lake Okeechobee. This helps because ranchland makes up over one-third of the large Florida watershed called the headwaters of the Everglades, the lands and waters that flow south to Lake Okeechobee, and from there to the coasts and the Everglades.” She added, “It is easier to implement because ranches already have ditches, and these can be converted at lower costs into water management sites with simple structures and automated electronic monitoring equipment.”

Steffan Pierre, Archbold Research Assistant, maintains the NE-PES monitoring stations with once-a-month checkups. Pierre says, “My job is to locate the monitoring station and make sure everything is working. The stations are self-sufficient and automated, sending all their data wirelessly for Archbold researchers to oversee. Each station has a water flow structure that acts like a small dam, solar panels for electricity, and a fiberglass box that protects the data logger inside from weather and wildlife.”

Researcher Steffan Pierre working with the equipment at an NE-PES site in Florida's Northern Everglades. Photo by Dustin Angell.

NE-PES helps safeguard ranches from development while protecting Florida habitat and wildlife, for species such as wading birds, Burrowing Owls, Crested Caracaras, and large-ranging wildlife like Florida Panthers. The NE-PES program is not enough to solve large storm flows of nutrient-rich water pollution problems downstream, especially with Florida's increasing population, but it is a start.

NE-PES is one of many approaches used by the South Florida Water Management District to reduce damaging flows to downstream waterbodies. This is the agency who takes care of the water for most of the southern half of Florida, including parts of Highlands County where Archbold Biological Station is located. They are responsible for water management for more than 8 million Floridians, which affects the water health of rivers, lakes, coastal estuaries, and the Florida Everglades.

SFWMD has a big job. Most of South Florida would be wetlands and swamps if it wasn't drained with man-made ditches and canals to make room for people. When it rains during Florida's wet season, SFWMD makes sure the water doesn't flood people's homes and farms. They do this by managing the water released from Lake Okeechobee when the Army Corps of Engineers decides that Florida's largest lake, Lake Okeechobee, has reached its maximum storage capacity. The SFWMD uses the canals and rivers running between the Lake and the coasts to try and manage the flows released from Lake Okeechobee. The addition of the NE-PES gives SFWMD one more tool to manage water by holding it back and keeping it from flowing downstream to the lake and/or estuaries when they may already be at peak capacity. Unfortunately, Lake Okeechobee is highly polluted from all the water flowing into it. Some of this water travels hundreds of miles to the lake and picks up pollution, often in the form of extra nutrients from fertilizer, along the way. Even polluted water from south of the lake, which would normally flow southward, is pumped northward for storage in the lake. So when the lake water is sent to the coasts, the extra nutrients cause algal blooms that turn the water and air toxic. Humans can get sick from just breathing the air. Marine mammals like dolphins and manatees, as well as fish, arthropods, and plants living in the toxic water may die. The monitoring stations Steffan maintains are aimed at addressing this serious problem.

In Florida's heartland, water connects everyone to the ranchlands. If you live in Lake Placid, Sebring, or Avon Park, the next time it rains in your neighborhood some of that water will likely flow through a cattle ranch on its way to Lake Okeechobee. Along the way it may even encounter Steffan on his monthly rounds.

The NE-PES project and SFWMD's other tools are not yet enough to fully solve our water pollution problems, especially as Florida's human population grows so rapidly. So, how will we solve them? No one knows yet, but one thing is clear – we will need help from the ranchers and from scientists like Steffan.