

WMU to study Charlotte's water-quality troubles

By GARY ROBERTS

STAFF WRITER

1/25/17

MURDOCK — As part of a growing synergy that is mutually beneficial, Western Michigan University science faculty members will soon launch a pair of pilot projects to hopefully resolve Charlotte County environmental issues. In a presentation Tuesday to the County Commission, Ed Martini, WMU's Extended University Program's associate dean, discussed upcoming studies that will address the harmful effects that algal blooms and septic systems have on coastal waters and lakes.

"These pilot projects are the starting point of what we see as a long-term collaborative partnership with WMU, Charlotte County and the local community," Martini said. "This is not simply about data gathering, but developing and supporting tools for sustainable communities."

Already, the process has begun to line up university resources against the county's water-quality barriers. Martini said funding is secured for these projects, with WMU approving 75 percent of the cost and local support accounting for the rest.

"We are setting up shop and excited to become an integral part of the community," he said.

Mohamed Sultan, chair of WMU's geosciences program, shared the results of two previous projects that investigated algal blooms like what has been experienced off Manasota Key. These studies, including one in Kuwait Bay, developed a data-driven model to forecast the probability of a blue-green algae outbreak by identifying controlling factors.

"The problems are very similar to what you have here, but it's a little bit hotter there," he said.

In Charlotte, WMU faculty will be able to access existing data for the past 17 years — identifying variables such as rainfall, temperature, wind and sea currents — to construct the same type of prediction model. In addition, by compiling an inventory of known algal bloom locations in the past, the model could be used to mitigate the occurrence of red tide in coastal waters and algal blooms in inland waters such as Sunshine Lake.

In this way, scientists can determine which variables play critical roles in these outbreaks, he said.

"That's the bottom line: narrowing down what factors are really important," Sultan said.

Commissioner Ken Doherty said he was surprised at how much archived data is readily available from past years to help determine where and when future algae growth will take place.

Matt Reeves, director of WMU's hydrogeology program, then talked about the water-quality impact of septic systems, which release nitrogen, the primary nutrient responsible for algal blooms. With 28,000 septic tanks in Charlotte, which has a high

water table that is susceptible to septic effluent, the threat of nitrogen being released into coastal waterways and lakes is considerable, he said.

A future study will introduce a nontoxic tracer into the subsurface water, observing how it is dispersed in velocity and flow paths. Up to a half-dozen monitoring wells will be used to measure and analyze data.

“You don’t have effluent moving in just one mass. It tends to spread out into a larger pool,” Reeves said.

The duration of this project, which he estimates would cost about \$25,000, should be at least a year to cover both wet and dry periods. The results from this pilot project will be used to produce funding for more comprehensive studies, he said.

But before the work can begin in earnest, Martin explained that WMU is still awaiting final authorization to offer academic programs in Florida, which is expected in mid-March. After “program specific approvals” are received, WMU will begin to hire staff and actively recruit students to Charlotte, starting with an aviation program for about 50 students in fall 2017.

A class of physician assistants will likely begin in January, with additional health and environmental science programs to follow. Over the next couple of years, a couple dozen staff and faculty, along with several hundred students, will be on the ground in Charlotte County.

“We’re as excited as you are about your coming to the community,” Commissioner Stephen R. Deutsch told WMU officials.

Email: groberts@sun-herald.com



SULTAN



REEVES