Zebra invasion

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has run rampant in the Great Lakes Region. "We were fortunate we had a filter, or it could have been a lot worse," said Fernando Fernandez, superintendent at Green Acres Country Club in Palatine, Ill.

Two years ago Green Acres had zebras two inches thick coating the sea wall around its irrigation pond. Fernandez, who buys water from Lake Michigan, told water plant operators about the zebras and, "very mysteriously, they all died within three or four weeks," he said.

Fernandez believes the water company injected chlorine or sodium hyper chloride into his water "because our turf got very yellowish and faded."

Fortunately, Fernandez mixes the lake with rain and well water.

"I would have had some bad problems if I had used it straight," he said.

A marine biologist took samples and recommended that Fernandez lower the pond down to the mud in the winter, so the mussels wouldn't have anything to stick to. Basically, the exposed mussels would freeze to death.

Bill Aiston was not as fortunate as Fernandez. Superintendent at Lake Shore Country Club in Glencoe, Ill., Aiston buys Lake Michigan water for his three small irrigation ponds before that chlorine-treated water can kill the zebra mussels. And since his ponds contain a lot of filamentous algae, the water would clog a filter as fine as 50-micron mesh.

"They're going right through to the sprinkler heads, so we spend a lot of time cleaning strainers on individual heads," Aiston said. "A lot of it is teeny slivers of broken shells, and in their juvenile stage they are mushy and can be wiped off."

The mussels stick on submerged golf balls, aerators, the filter screen, anything, he said, adding, "Monthly I have to knock them off my filter screen."

This fall Aiston will completely drain the ponds and let them sit for two weeks. "We'll have to do that every year. There is no chemical or electrical means to control them that is feasible for a golf course."

By blowing out the irrigation system before winter, he will knock a lot of debris out, he said.

But Aiston doesn't describe the zebras as a big problem — yet. "Since our lakes are only 3 years old, we don't have any mature zebras in them," he said. "They grow to the size of 1-1/2 inches and get four or five deep."

National Biological Service (NBS) fishery biologist Amy Benson said water heated to 100 degrees also kills zebra mussels, which can withstand water temperatures in the 80s. Then again, a course's irrigation system would have to be shut off.

Even with these treatments, the zebra mussels return "if you don't take preventive measures," Clarke said.

To prevent an infestation of a irrigation system, "take precautions," advised Nancy Balcom, Extension educator with the Sea Grant Marine Advisory Program at the University of Connecticut. The mollusks have expanded their range most quickly through the major river systems — flowing with the currents or being transported on the hulls of barges and large vessels, she said. Some are also being transported from one body of water to another by unwitting boaters and anglers, she said, adding, "We educate people to rinse off and dry out their boats, to scrape off aquatic weeds, to not transport bait from lake to lake..."

Zebras enter water intakes several ways: in the form of veligers they are carried by the water flow; as juveniles they can crawl in using their clamlike foot; and as adults they can break loose from colonies and travel to intake mouths with the currents.

Balcom said superintendents could install 50-micron-mesh in-line filters, but they would clog quickly. "A better alternative is to use a fine sand filter like those used for swimming pools, or an automatic backwash filter," she said.

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So invasive are the zebra mussels that a Zebra Mussel Information Clearinghouse has been initiated at New York Sea Grant, and the NBS is mapping their movement and operates a worldwide web site devoted to zebra mussels.

"The prognosis is grim for all of the continental U.S.," Balcom said. "If there are appropriate water temperatures, enough calcium in the water for shell formation and a good food supply [plankton], they can spawn when water reaches 54 degrees, so that's seven to eight months of the year or longer. They can survive in eight to 12 parts per thousand of salinity in a laboratory. And they're prolific. Over a season one zebra can produce more than one million eggs."

Once zebra mussels arrive in an area, they are there for good. Europeans have dealt with them for more than 100 years and have succeeded by engineering infrastructures with the little creatures in mind.

"Our problem is that we're playing catch-up," Balcom said.

Teleconference aims to raise defenses before zebras arrive

GAINESVILLE, Fla. — A free satellite teleconference on the predicted zebra mussel invasion of the Southeast will be held from 9 a.m. to 4 p.m. Sept. 27. One of the four case studies scheduled to be aired deals with impacts on golf courses.

Sponsored by Florida Sea Grant in cooperation with the Southeastern Sea Grant Programs, the conference will bring together experts from around the country who have first-hand experience in tracking, analyzing and fighting zebra mussels.

"We're uplinking in Gainesville and will go out to any Extension office across the Southeast," said Marion Clarke of the University of Florida campus here. Although anyone can tune in to the teleconference, it is being targeted to states from Texas to Florida, up the Atlantic Coast to North Carolina and as far as Oklahoma, Arkansas and Tennessee.

For more information and downlink sites, people should contact their Sea Grant Program offices: Texas (512-994-8426); Louisiana (504-388-6305); Mississippi (601-388-4710); Alabama (334-438-5690); Florida (904-392-1837); North Carolina (919-515-2454); Georgia (912-264-7268); and South Carolina (803-727-2075).

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Meanwhile, the Florida Sea Grant Program is funding research into the most vulnerable environments in the state.

Ernie Estevez at Marineland will look at the environments where the zebra is flourishing in the Northern states and comparing those environments with Florida," Clarke said, adding that other states are undertaking similar studies.

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Sources of zebra mussel information:

Marion Clarke, Sea Grant Extension Program, University of Florida at Gainesville (904-392-1837).

Amy Benson, fishery biologist, National Biological Service (904-378-8181; FAX 4956). The NBS has a zebra mussel database ;on the worldwide web, address: WWW.NFRCG.gov

Chuck O'Neill, Zebra Mussel Information Clearinghouse at New York Sea Grant (716-395-2638; FAX 2466).

Nancy Balcom, Sea Grant Marine Advisory Program, University of Connecticut (203-445-8664), which has produced the 10-minute videotape, The Invasion of the Zebra Mussel: Just a Matter of Time?