

Invasive mussel no threat in area waters, study says

By John D. Cox
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Since it took hold in the Great Lakes 10 years ago, Californians have watched with dread as the invader zebra mussel has spread from New York to Oklahoma, clogging waterworks and choking the environments of rivers and lakes.

Is it just a matter of time before the pest fouls Lake Tahoe, infests the rivers and reservoirs of the Sierra Nevada, moves down through the Sacramento-San Joaquin River Delta, and threatens the water supply for agriculture and 22 million urbanites?

No, the first study of its kind disclosed Tuesday, California is far less vulnerable to a zebra mussel infestation than much of the Midwest — although aqueducts of the State Water Project and the Central

Valley Project could be at risk.

"Tahoe is out," said biologist Anna Weinstein, co-author of the study with colleague Andrew N. Cohen of the San Francisco Estuary Institute. So, too, are the main rivers and reservoirs of the Sierra Nevada and the Sacramento River watershed and most of the Delta.

Weinstein on Tuesday presented the results of a study of 160 potential sites — rivers and lakes and aqueducts — to the Eighth International Zebra Mussel and Aquatic Nuisance Species Conference, which brought more than 300 scientists and officials this week to Sacramento.

The zebra mussel and other nuisance species of aquatic plants and animals are multibillion-dollar problems across the globe, and states and nations are struggling with strategies to curb their spread.

An earlier study by Cohen describes

San Francisco Bay as "the most invaded aquatic ecosystem in North America," pointing to ballast water from international cargo ships as the likely source for most of the bay's 212 invader species.

Across the country, nothing more powerfully speaks to the problem than the tenacious zebra mussel, which spread from the watersheds of Eastern Europe in the 19th century. Since it was first discovered in the Great Lakes in 1988, the mussel has spread down the Hudson to New York, down the Mississippi to New Orleans and overland into dozens of freshwater lakes.

Zebra mussels attached themselves to any hard surface in incredibly dense colonies, clogging pipes of water intakes and other structures. They crowd out native species of mussels and clams, scientists say, and so impoverish lakes and streams

that fish populations are diminished.

Ballast water restrictions have been imposed, and California has undertaken such strategies as inspecting boats being trailed into the state to forestall what many officials fear is the mussels' all-but-inevitable spread.

The new California study examined water quality data, measuring such elements as salinity, calcium content, acidity, temperature, velocity and dissolved oxygen — characteristics critical to zebra mussel colonization.

"The zebra mussel has a wide but not comprehensive potential range in California," the study concluded. Of the 160 sites studied, 54 percent were ranked as having low or no potential to support colonies of zebra mussel.

Of the 86 sites found to be unsuitable, the biologists found that 65 percent were

too low in calcium, including Lake Tahoe, the Sierra streams and the Sacramento River, where high water velocity also is uncongenial to the mussels.

By contrast, many sites found to have high potential for colonization are part of the San Joaquin River watershed, where calcium levels are relatively high and currents are slower. These include the lower Delta and aqueducts of the state and federal water projects, which carry high concentrations of San Joaquin River water.

South of the Delta, the study found, the aqueducts and many of the federal and state storage facilities that deliver water to farmers in the Central Valley and urban users in Southern California "provide optimal chemical and physical conditions for zebra mussels, and thus may support abundances approaching those seen in the Great Lakes."