

# An evaluation of Quagga mussel (*Dreissena bugensis*) populations in Lake Havasu, Arizona

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Quagga mussels (*Dreissena bugensis*), are an invasive bivalve that were first discovered west of the Rocky Mountains at Lake Mead on January 6, 2007. They quickly spread to other reservoir systems in the Lower Colorado River. Lake Havasu's Parker Dam is currently the most affected Bureau of Reclamation dam on the lower Colorado River. Heavy colonization began in late 2007, and in early 2008, the population of quagga mussels was large enough to plug the dam's domestic water line and foul the water surrounding the generator seals. The gates on the dam's spillway were also heavily colonized.

## Methods

To evaluate lake habitats away from the dam, U.S. Bureau of Reclamation SCUBA divers worked with BLM biologists and sampled six locations in Lake Havasu from 24 to 26 June 2008. Mussels were collected by removing small (7" x 7") pieces of snow fence that had been previously placed into Lake Havasu as fish habitat structure. The snow fence pieces were then placed in plastic bags filled with ethanol and shipped to the U.S. Bureau of Land Management National Aquatic Monitoring Center. In the laboratory, the snow fence pieces were scraped with a spatula to remove the bivalves and other colonizing organisms into a dish. The invertebrates were then sorted from the debris and enumerated under 0.7 X magnification.

## Results

Quagga mussels were the only invertebrates collected by the divers. The mussels appeared to readily colonize the snow fence (Plate 1). Mussel densities ranged from 438 to 25,594 individuals per square meter across all sampling locations (Table 1). The most abundant populations were located in Mosquito Cove and Cove of Little Foxes.

Location	Densities (number m <sup>-2</sup> )
Mosquito Cove	25,594
Wren Cove	5,313
Teal Cove	5,969
Solitude Cove	438
Bass Isles	9,188
Cove of Little Foxes	10,531



## Future recommendations

It is recommended that these locations be surveyed annually and that other locations in the lake be surveyed as well to better understand their rate of spread throughout the lake. Studies of the role of Quagga mussels in the Lake Havasu food web are also warranted due to the high fishery values of Lake Havasu.