

To Accompany Joint Press Release of 6/10/09

Mussel Fact Sheet

What are quagga and zebra mussels?

Quagga mussels (*Dreissena bugensis*) and zebra mussels (*Dreissena polymorpha*) are small, freshwater bi-valve mollusks (relatives to clams and oysters) that are triangular in shape with black (or dark brown) and white (or cream) striped markings that appear on its shell. They are the only freshwater mussel in the United States that attach to hard surfaces.

Where did quagga and zebra mussels come from?

Quagga and zebra mussels are native to the Caspian and Black Seas of Eastern Europe. Zebra mussels were first discovered in the U.S. in Lake St. Clair, Michigan, in 1988 and were believed to have been introduced through ballast water discharge from ocean-going ships. Since their initial discovery, zebra and quagga mussels have spread rapidly throughout the Great Lakes and Mississippi River Basin states and other watersheds throughout the eastern and central U.S.

How do quagga and zebra mussels move from one body of water to another?

Quagga or zebra mussel reproduce through a process known as external fertilization which forms microscopic veligers that are invisible to the naked eye. These veligers move by drifting on water currents either downstream or within a body of water. Unknowing boat owners and fisherman run the risk of moving water from an infested water body to a non infested body of water. This could be water in the bilge or fisherman transporting bait in live wells. Fishermen are encouraged not to bring any bait with water from a contaminated lake. Even though you cannot see them, they still have the possibility of settling if released.

Zebra and quagga mussels are most commonly spread from one body of water to another by attaching themselves to boats, which are launched in one lake and then later moved into a different lake. Proper cleaning and drying of boats and all equipment that may have come into contact with the water is the most important step boaters can take to prevent inadvertently spreading mussels. General instructions that all frequent boaters should follow for cleaning boats and other gear to stop invasive aquatic nuisance species is available at www.protectyourwaters.net; detailed instructions are available at http://www.wildlife.utah.gov/quagga/pdf/boat_inspection.pdf

Why should the public be concerned?

Zebra and quagga mussels pose a great ecological and financial threat! These mussels degrade recreation through fouling boats and engines, disrupting fishing, littering beaches, and will increase the cost associated with treating and delivering drinking water and generation and distribution of power to customers. Everyone will have to pay more to deal with mussels if they arrive.

They grow and reproduce exponentially. A single female can produce up to one million eggs a year. Even if only one percent of the offspring survive, there would be over a septillion mussels in the waterway at the end of five years.

They clog water infrastructure, impacting water supply and quality. They attach to most underwater structures and can form dense clusters that impair facilities and impede the flow of water. They clog intake pipes and trash screen, canals, aqueducts and dams. The mussels also degrade water quality and can alter the taste and smell of drinking water.

They have significant economic impacts. As the maintenance costs for power plants, water treatment facilities, and water delivery infrastructures increase, so does the cost of food and utilities. The Metropolitan Water District of Southern California, which takes its water from Lake Havasu (an infested water body), spends \$10 million a year on mussel control efforts. Lake Mead National Recreation Area in Nevada is spending \$2 million just to maintain facilities associated with recreational use of the lake. In the Great Lakes area, maintenance costs in water treatment plants, power plant intakes and dams have been in the billions of dollars. The destruction of native fisheries also has a wider economic impact in terms of tourism and recreation dollars not spent.

They have significant ecological impacts. They have the ability to change aquatic ecosystems and native plant and animal communities. The amount of food they eat and the waste they produce have life-altering effects on the ecosystem and can harm fisheries. As filter feeders, these species remove large amounts of microscopic plants and animals that form the base of the food chain, leaving little or nothing for other aquatic species.

They have recreational impacts. These mussels encrust docks and boats, and can get into engine cooling systems causing overheating and damage. The weight of attached mussels can sink navigational buoys, breakwaters, docks, and small vessels. Dead mussels can foul beaches and lake shorelines with sharp smelly shells.

They are very difficult to kill. In only one instance have managers been successful in eradicating zebra mussels, and that was an isolated 12-acre quarry in Virginia. A large volume of chemical was used to treat the water and kill adults and larvae. Eradicating or treating zebra or quagga mussels in large water bodies and/or connected waterways may not be possible, so prevention is very important.

They spread very quickly to other water bodies. Mussels can spread to other bodies of water by attaching to boat hulls and anchors, trailers, and fishing equipment. Larvae can be transported in bilge water, ballast water or live wells. Mussel larvae disperse naturally by downstream currents to other lakes or reservoirs or through water diversions.

What can we do?

Educating the public and instituting a strict inspection program for prevention is the most important thing we can do. Boaters can learn to inspect their boats themselves by making certain their craft is cleaned, drained, and dried in between water bodies. In addition, boaters moving

from infested waters to non-infested waters should ensure proper decontamination prior to launching.

At Glen Canyon National Recreation Area, beginning June 29, 2009, expanded mussel prevention measures will be instituted. The self-certification process at the major ramps will be suspended and all boats launching at Wahweap, Lone Rock Beach, Antelope Point, Bullfrog, Stanton Creek, and Hall's Crossing will be required to be screened by trained NPS, or designated state and concessions employees, to determine whether they need to be inspected and decontaminated. Screening hours will be from 4:30 am until 9:00 pm Mountain Standard Time (5:30 am until 10:00 pm Mountain Daylight Savings Time). Launching outside of these hours will be prohibited. Self-certification requirements will remain in place for remote launching areas including Hite. Boats that have been in states with known quagga or zebra mussel infestations in the last 30 days are required to be inspected and potentially decontaminated before launching on Lake Powell.

Where can I get more information about quagga and zebra mussels?

Visit: www.100thmeridian.org, www.protectyourwaters.net, or www.nps.gov/glca