

## Fiscal Highlights

### **How Will Quagga Mussel Impact Utah Financially?** - Ivan D. Djambov

Now that the invasive quagga mussels are established in Lake Powell, how long before they get to other Utah waters, and how much will it cost Utah taxpayers each year to mitigate for the damages they cause?

The quagga mussels spread very fast. A female produces up to a million larvae per year, and the mussels do not have many natural predators in North America. Adult quagga can also survive 3-5 days out of the water in summer temperatures.

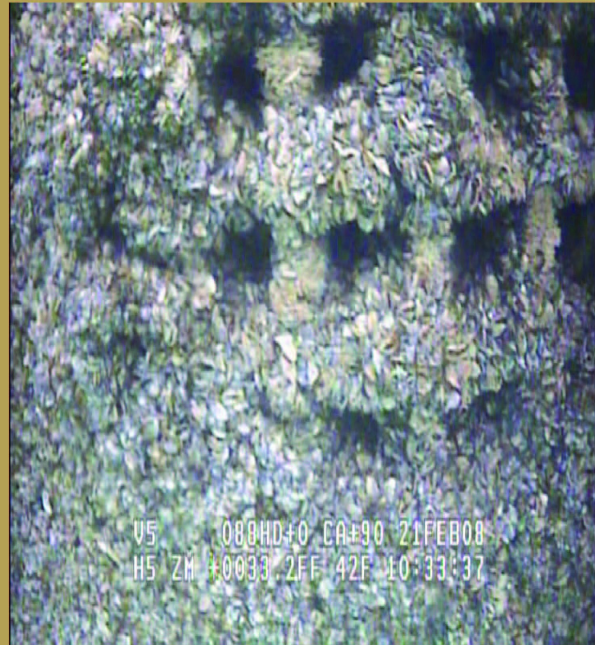
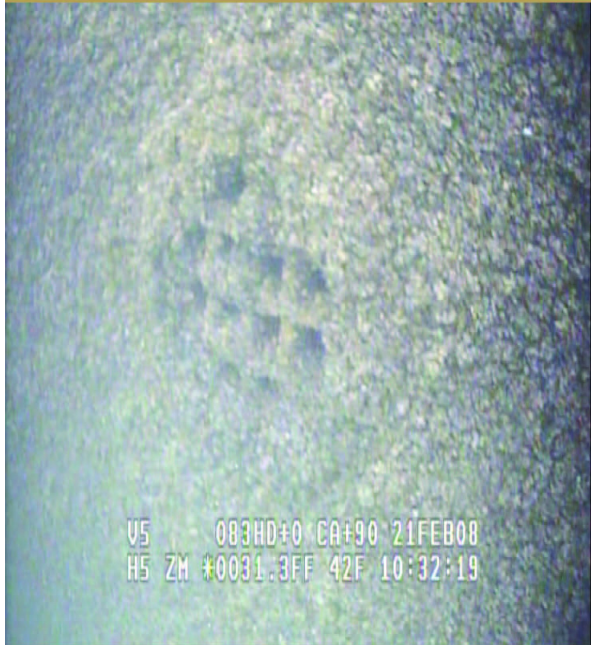
Small in size (adult mussels are no larger than an adult's thumbnail), the quagga mussel colonies can grow so close together that they cover the entire bottom of a lake. They block off pipelines and screens for culinary water, sanitation, intakes to power plants and irrigation. The mussels also degrade the water flavor for drinking water facilities, clog up sprinklers at golf courses, impact fisheries, and require extra repairs and maintenance for boat owners. For infested states, the costs to live with quagga is hundreds of millions of dollars per year.



Source: <http://greatlakesoutdoors.wordpress.com>

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## Underwater Photo – Domestic Water Intake Parker Dam - February 21, 2008



RECLAMATION

Source: usbr.gov



Source: examiner.com



Source: marronebioinnovations.com

### *How Fast Will They Spread?*

It took six years for the quagga mussel to get from Lake Mead to Lake Powell. The logical questions are: how long before they infest the next body of water in Utah and which body of water will it be?

The primary ways of spread of the mussel are through boats and canals/pipes. With Lake Powell being downstream to Utah on the Colorado River, and the Lake Powell pipeline not yet constructed, the most likely way of spreading the quagga in Utah is boats.

The 2014 boating season in Lake Powell has already started. It is common for boaters who spend time in Lake Powell to visit other bodies of water in Utah either on their way home or within the following week or two. What are these bodies of water? The table below provides the top ten waters in Utah used by Lake Powell boaters in 2013.

Top 10 Utah Waters Used by Lake Powell Boaters, 2013	
1	Utah Lake
2	Bear Lake
3	Pineview
4	Rockport
5	Sand Hollow
6	Jordanelle
7	Deer Creek
8	Hyrum
9	Flaming Gorge
10	Yuba

According to the Division of Wildlife Resources, the top three destinations in 2013 for boaters coming from Lake Powell were Utah Lake, Bear Lake, and Pineview Reservoir. Statistically, these are the most likely waters to be infested next with quagga. However, since thousands of boats from Lake Powell are used all over Utah, and since it takes only one vessel carrying the mussel or its larvae to spread it, there are no guarantees for any other water body in Utah. The speed of the quagga invasion will depend on the effectiveness of the state's efforts to slow the spread and the willingness of the boaters to do their part.

### *How Much More Will Utah Taxpayers Have to Pay?*

The economic impact of quagga to Utah is going to be significant. There will be direct additional costs to water users, power-generation facilities, and agriculture to mitigate for blocked pipelines and screens, intakes to power plants, and irrigation. There will also be additional economic impacts to the state as a result of the loss of revenue to Utah's tourism, fishing and recreation industries.

Based on the actual costs incurred by eastern states infested with quagga, the Division of Water Resources has estimated that the additional costs will be over \$21 million per year for maintenance and mitigation (see table below). This figure does not include the costs for cleaning pipelines (over 1,120 miles), canals (7,700 miles), and secondary water systems, because these costs are yet to be identified.

<b>Potential Additional Costs Assuming Statewide Infestation</b>	
<b>Category</b>	<b>Annual Cost</b>
<b>Water treatment plants</b> (31)	<b>\$10,359,618</b>
Coal power-generating plants (7)	\$3,745,273
<b>Industrial</b> (10, probably more)	<b>\$3,116,201</b>
Reservoirs (150, monitor only)	\$1,987,008
<b>Hatcheries &amp; aquaculture</b> (33)	<b>\$1,805,979</b>
Hydro power-generating plants (56, largest three estimated)	\$197,372
<b>Golf courses</b> (128, monitor only)	<b>\$49,259</b>
Pipelines (1,120+ miles)	unknown
<b>Canals</b> (7,700 miles)	<b>unknown</b>
Secondary water systems	unknown

These cost estimates are based on the assumption that all major bodies of water in Utah are infested with quagga, which has not yet happened, but according to the experts, it is just a matter of time.