



Glen Canyon National Recreation Area Expanded Zebra Mussel Action Plan



**STOP AQUATIC
HITCHHIKERS!™**



Introduction

On January 6, 2007, quagga mussels, a type of invasive mussel commonly referred to as zebra mussels, were discovered in Lake Mead. Since that time, quagga mussel infestations have been discovered in Lakes Mohave and Havasu.

Currently, Lake Powell and the upper Colorado River basin are believed to be free of quagga mussels. However, zebra and quagga mussels pose a major threat to Lake Powell and the upper Colorado River if they were to become established. Experts fear that zebra mussels could spread quickly through the Colorado River watershed and potentially establish themselves in other river systems.

If zebra or quagga mussels were to infest Lake Powell, they could:

- Disrupt the food chain and fishing
- Foul facilities like docks and ramps
- Encrust boats and clog engines
- Litter beaches with sharp smelly shells
- Clog drinking water and other intake pipes, increasing maintenance costs

Zebra mussels were first discovered in the U.S. in Lake St. Clair (near Detroit) in 1988. Since that time zebra mussels have spread at an alarming rate through much of the Eastern U.S., but only recently have they made it across the Rockies.

Aquatic nuisance species such as zebra and quagga mussels present a growing worldwide problem. New nuisance organisms are continually being identified. Impacts from aquatic nuisance species can be extreme and affect ecosystems, recreation, and economics. Aquatic nuisance species infestations are generally permanent; prevention is the only good strategy to combat them. Education is critical because aquatic nuisance species generally need humans to move anywhere but downstream.



Quagga mussels at Lake Mead National Recreation Area, 2007.

Risk Management

Lake Powell has always had an elevated risk of becoming infested with zebra mussels for several reasons. Glen Canyon National Recreation Area and Lake Powell receive nearly two million visitors annually, many of whom bring their privately owned boats. Many of the park's visitors also enjoy visiting other lakes in the region, including Lake Mead. Since zebra mussels are primarily spread by boaters, it is possible that a visitor could inadvertently transport zebra mussels from one lake to another. In addition, conditions in Lake

Powell, such as water temperature, turbidity, and salinity, are well within the ranges preferred by both zebra and quagga mussels.

It may or may not take a single introduction of zebra mussels for Lake Powell to become infested. Many factors including vessel infestation level, water conditions at introduction, period of exposure, and other variables determine how likely introduced organisms are to become established.

Components of the Expanded Action Plan

Glen Canyon National Recreation Area has had a zebra mussel prevention program in place since 1999. Through ARAMARK, a park concessioner, the Glen Canyon had the first boat decontamination systems in the West designed to remove zebra mussels.

i. Zebra Mussel Prevention is the Law

Since 2003, Glen Canyon National Recreation Area has required that all boats that had been launched in states with zebra mussel infestations within the last 30 days be decontaminated before launching in the park. In addition, other state and federal laws prevent the transportation of zebra mussels and other nuisance species.

In light of the infestation in the lower Colorado River, Glen Canyon's zebra mussel rule has been expanded for the 2007 season. Visitors towing boat trailers are now required to also display a "mussel free certificate" on their dash while parked in Glen Canyon. This will help ensure that all visitors launching boats in the park follow the zebra mussel prevention program.

2. Using Entrance Stations to Contact Visitors

Every visitor bringing a boat into Glen Canyon National Recreation Area is asked a series of questions to determine whether or not they pose a risk for harboring zebra mussels. Entrance station staff will ask visitors questions to determine when and where their boat was last used. If the boat does not present a threat of harboring zebra mussels, visitors will be given a “Mussel Free” certificate to display on their dashboard while they are parked within Glen Canyon National Recreation Area. If they need to get their boats decontaminated, they will be directed to any of the local decontamination stations.

3. Decontaminating Boats

Through the park’s concessioners, ARAMARK and Antelope Point Holdings, LLC, zebra mussel decontamination stations are already in place at Wahweap, Antelope Point, Bullfrog, and Halls Crossing Marinas. To accommodate the expected increased demand for boat decontaminations, the National Park Service and ARAMARK are constructing four additional stations at Wahweap Marina and another at Bullfrog.

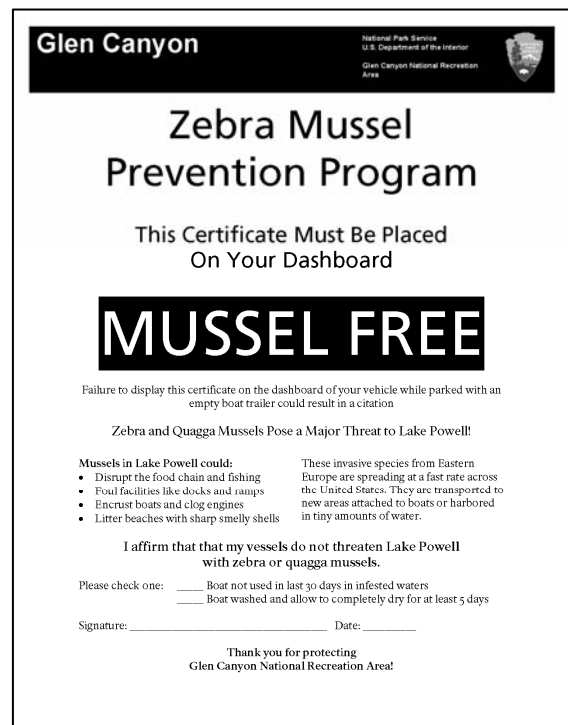
The National Park Service will actively seek to partner with local businesses around Glen Canyon to establish additional decontamination stations in gateway communities, such as Page, Arizona; Big Water, Utah; and Ticaboo, Utah. This will help make boat washing and decontamination as convenient as possible for park visitors.

4. Allowing Visitors to Self- Certify that their Boats are Mussel Free

The National Park Service has developed a simple system to allow visitors to certify that their boats are zebra and quagga mussel free. Visitors will be able to look at a simple set of questions to determine whether or not their boats need to be decontaminated before they launch in Lake Powell. Visitors not needing a full decontamination will sign a certificate stating their boats are mussel free (included with the self- certification packet). For visitors needing to get their boats decontaminated, maps will be included in the packet directing them to local stations. To make the program convenient for visitors, self- certification packets will be distributed widely: on Glen Canyon’s website, at park visitor centers, on launch ramps, at hotels, boat shops, sporting goods stores, and other local businesses.

5. Continuing Monitoring Programs

Glen Canyon National Recreation Area has monitored Lake Powell for zebra mussels since 1999. Artificial substrate samplers are deployed across the lake to allow early detection of any infestation. This monitoring will continue.



The image shows a certificate titled "Zebra Mussel Prevention Program" from Glen Canyon National Recreation Area. It includes a header with the National Park Service logo, the text "This Certificate Must Be Placed On Your Dashboard", and a large "MUSSEL FREE" stamp. Below the stamp, there is a warning about the consequences of not displaying the certificate, a statement about the threat of zebra and quagga mussels, a list of actions that could threaten Lake Powell, and a section for visitors to affirm and check off their compliance with the program. The certificate also includes a signature line and a date field, and ends with a thank you message from the National Park Service.

Glen Canyon National Park Service
U.S. Department of the Interior
Glen Canyon National Recreation Area

Zebra Mussel Prevention Program

This Certificate Must Be Placed On Your Dashboard

MUSSEL FREE

Failure to display this certificate on the dashboard of your vehicle while parked with an empty boat trailer could result in a citation

Zebra and Quagga Mussels Pose a Major Threat to Lake Powell!

Mussels in Lake Powell could:

- Disrupt the food chain and fishing
- Foul facilities like docks and ramps
- Encrust boats and clog engines
- Litter beaches with sharp smelly shells

These invasive species from Eastern Europe are spreading at a fast rate across the United States. They are transported to new areas attached to boats or harbored in tiny amounts of water.

I affirm that that my vessels do not threaten Lake Powell with zebra or quagga mussels.

Please check one: Boat not used in last 30 days in infested waters
 Boat washed and allow to completely dry for at least 5 days

Signature: _____ Date: _____

Thank you for protecting
Glen Canyon National Recreation Area!

Visitors may conveniently self- certify that their boats are free of mussels.

6. Educational Outreach and Communications

The National Park Service and its partners will continue to highlight the threat of zebra mussels with the media and its stakeholders at every available opportunity. Glen Canyon National Recreation Area is printing 40,000 copies of the “Zap the Zebra Mussel” brochure. These informative, full color pamphlets will be distributed at locations throughout the park. Other educational materials will be distributed to businesses in gateway communities. Glen Canyon’s website has been updated to include a variety of information about zebra mussels. The park will develop public service announcements for local radio stations, and the 1610 AM travelers’ information radio broadcast has been updated to include information about mussels. A dedicated zebra mussel hotline with recorded information has also been established (928- 608-6257). Letters have been sent by concessioners to their slip customers alerting them to the zebra mussel issue.

Signage at critical locations throughout Glen Canyon National Recreation Area is being installed alerting visitors of decontamination requirements. Attention- grabbing signs are being placed near every entrance station and at the top of all launch ramps.

7. Adaptive Management

Glen Canyon National Recreation Area’s zebra mussel prevention program is intended to be flexible and adaptable. The program will be capable of responding to new information, new issues, or new opportunities. While there are significant challenges, many avenues exist to respond to changing information or levels of capability.

8. Partnering

Glen Canyon National Recreation Area is working closely with partners: the states of Arizona and Utah, the U.S. Fish and Wildlife Service, Lake Mead National Recreation Area, ARAMARK, Antelope Point Holdings, and our visitors. No one entity can prevent the spread of zebra mussels alone. If zebra or quagga mussels become established at other lakes in the region, containing them will become even more difficult. If zebra mussels were to become established in locations upstream of Lake Powell – Flaming Gorge Reservoir, for example – they would likely be transported downstream simply by the river’s current.

Ultimately, combating these exotic species will require a response much broader than just Glen Canyon National Recreation Area. The surrounding states play a vital role in helping to contain the spread of zebra mussels. The strong support of the business community will be imperative. We will need people in the surrounding region to help spread the message. Most importantly, we will need the help of boaters to make sure they do not inadvertently transport aquatic hitchhikers.