

**Statement of Karl Wirkus, Deputy Commissioner  
Bureau of Reclamation  
U.S. Department of the Interior  
Before the  
Committee on Natural Resources  
Subcommittee on Water and Power  
United States House of Representatives  
On  
Quagga/Zebra Mussel Infestation of Western Water Facilities  
June 24, 2008**

Madam Chairwoman and Members of the Subcommittee, I am Karl Wirkus, Deputy Commissioner for Operations of the Bureau of Reclamation. I am pleased to provide the Department of the Interior's views on the effect of two aquatic invasive species, quagga and zebra mussels, on Reclamation's water infrastructure.

Zebra and quagga mussels are native to Eastern Europe. Zebras were first discovered in the Great Lakes in 1988 and quaggas were discovered in 1989. Both probably arrived in the ballast water of ships originating in Europe. The main distribution of quagga and zebra mussels is in the Great Lakes region and within the major rivers of the Central United States. But as all of us here today are aware, we are now seeing the spread of both quagga and zebra mussels in the West. Quaggas have spread to Arizona, Southern Nevada, California, and beyond. While we have only recently discovered mussels in our western reservoirs, the westward movement of these invasive mussels did not catch the Department by surprise.

The Department of the Interior has been monitoring these mussels since they first appeared in the Great Lakes. In 1998, the Department created the U.S. Fish and Wildlife Service's (Service) 100<sup>th</sup> Meridian Initiative with the specific intent of preventing or slowing the westward spread of invasive species. While the appearance of invasive mussels in the west was not unexpected, we believe that the activities and programs instituted by the 100<sup>th</sup> Meridian Initiative and other Interior actions have forestalled the spread to western waters. Collective 100<sup>th</sup> Meridian actions, including a rapid response hotline provide capacity to prevent further spread of invasive mussels and protect the rest of the West. These actions contributed to an additional 10 years without these mussels in the West. Similarly, we are better prepared to deal with the presence of quaggas and zebras because of what we have learned through these activities.

To date, while these invasive mussels have not prevented the delivery of water to any Reclamation customers, there are several ways that mussels can impact efficiency at Reclamation's water facilities, including flow restrictions, which is our main concern, and chemical degradation, which basically means rust on our infrastructure. The mussels can have environmental impacts as well, such as the destruction of habitat, reduction of native mussels, and can impair water quality and potentially accumulate toxic materials.

We are continuing to learn and improve ways to treat facilities already impacted by mussels. At present, it is a very labor intensive process. Control strategies include: proactive approaches aimed at preventing settlement or addressing the larval stage; removal actions after settlement; and redesigning or modifying systems in order to prevent and better manage quagga infestations.

Copper coatings and foul release coatings show great promise, and Reclamation is currently testing 19 different coatings to determine the most appropriate ones for our facilities and water conditions. There is also a bacterial product being developed which may be both proactive and reactive in neutralizing quaggas and zebras. This has already shown great promise under laboratory conditions, and we will begin testing it in the field later this year.

There are also various other techniques that were developed in eastern waters that we are working on to see if they can be adapted to western conditions, including oxygen deprivation, temperature treatments, exposure and dry-up, passive and barrier filtration, removable substrates, electric currents, sonic vibration, and biological controls. We are working with our partners here today, and other state and Federal agencies, to develop appropriate management techniques.

Reclamation is also undertaking activities in an effort to learn more about quaggas and zebras to prevent further spread. In fiscal year 2008 Reclamation's research spending for the above activities is \$800,000, and we plan to expend \$1.5 million on a variety of initiatives in fiscal year 2009. We have reprioritized our research program, making invasive mussels a top research priority. We are also cooperating with all of the impacted states to do public outreach to educate and coordinate with our partners and stakeholders. We have put together a regionally-based, Reclamation-wide team to address this issue.

Meanwhile, other Federal agencies are aware of how the mussels can impact their mission areas and are taking action. The U.S. Geological Survey's fiscal year 2008 budget for aquatic invasive species work totals \$2.9 million, of which approximately \$200,000 will support the Department's partners as they deal with this recent invader. USGS researchers have been providing technical assistance to Departmental managers since the quagga mussel was first found in the Colorado River, and the USGS Nonindigenous Aquatic Species Database has been providing Federal, state and other managers with continuously updated distribution and location information on zebra and quagga mussel infestations since the early 1990s.

The Fish and Wildlife Service is spending \$5.3 million on its Aquatic Invasive Species Program in both FY 2008 and FY 2009 request, and approximately \$1.8 million of that will be spent on western waters. The Service's focus has been on preventing the spread of aquatic invasive species through the activities of the 100th Meridian Initiative and the Stop Aquatic Hitchhikers! national public awareness campaigns. With the arrival of mussels in southern Nevada and California, the Service participated with the two states in developing a new public education campaign called "Don't Move a Mussel" in order to reach a new audience unfamiliar with these aquatic invaders.

The National Park Service has also been an active participant in addressing mussel-related challenges, with a focus on the preservation of natural ecosystems, monitoring and early detection of mussel infestations, and education. For example, Lake Mead National Recreation Area coordinated the initial interagency response when infestation was first found there and convened a science panel to advise partner agencies and to review appropriate response actions. An incident command team was tasked with developing a prevention and response planning guide, bringing Federal and State agencies together to prepare it, which is constantly updated and is made available to our partners. Finally, NPS is spending \$5 million in fiscal year 2008 on its inspection program in six high risk parks.

The National Oceanic and Atmospheric Administration works to prevent and control aquatic nuisance species in the Great Lakes and along the coasts. NOAA's National Sea Grant College Program's Great Lakes network funds a variety of state-level research, extension, education and communications projects to combat the spread of zebra and quagga mussels. NOAA's Great Lakes Sea Grant Network surveyed and assessed the effectiveness of boater education in preventing the further spread of invasive species. NOAA also partnered with the Pet Industry Joint Advisory Council and the Fish and Wildlife Service to launch Habitattitude™ to educate the public about the further release of invasive species into the environment.

Ultimately, the presence of invasive mussels will change the way we design and operate our facilities in the future. For Reclamation, addressing the impacts of mussel infestation in western river basins is a high priority and is central to our core mission of delivering water and generating power. Further, the long and short-term economic and environmental consequences of mitigating the impacts of zebra and quagga mussels are significant. At the same time, we need to balance the need for control and prevention with the short term economic impacts of the response. Reclamation is working closely with our managing partners, customers, contractors, and state and local governments to implement a four-part strategy of:

- Outreach and education
- Research
- Monitoring and prevention of infestation; and
- Control and mitigation

In implementing this strategy, it is important to remember that each region and each project is unique and, as such, each reservoir and basin requires a customized response.

While invasive mussels pose a significant challenge to water systems in the west, it is just one of many such challenges. Reclamation and our partners have faced other aquatic nuisance species, such as mitten crabs, tamarisk (salt cedar), Russian olive, hydrilla, and watermilfoil, which threaten western water infrastructure or Reclamation facilities, Departmental lands, and Federal trust species. In each case so far, we have successfully managed those species and have continued to assure the effective operation of our facilities. Ultimately, the Department and its partners will work together to find appropriate solutions. I am pleased to share the witness table with these partners here today.

This concludes my written statement. I am pleased to answer any questions the Subcommittee may have.