Clean, drain and dry.

If a boat moved from an infested area will be launched in waters that are not infested with zebra or quagga mussels, the general recommendation is to keep the boat out of water and let it dry for a minimum of 30 days after cleaning all equipment and draining all possible sources of standing water. However, such “quarantine” times may be reduced depending on local temperatures and relative humidities.

In general, zebra and quagga mussels can survive longer out of water if local conditions are cold and humid than if conditions are hot and dry.

See http://www.100thmeridian.org/Emersion.asp for 'Drying Time Estimator'.

Zebra and Quagga mussels are notorious for their capabilities to colonize water supply pipes of hydroelectric and nuclear power plants, public water supply plants, and industrial facilities. They colonize pipes constricting flow, therefore reducing the intake in heat exchangers, condensers, fire fighting equipment, and air conditioning and cooling systems. Zebra mussel densities were so high at one power plant in Michigan that the diameters of pipes have been reduced by two-thirds at water treatment facilities.

Although there is little information on Zebra mussels affecting irrigation, farms and golf courses could be likely candidates for infestations. Navigational and recreational boating can be affected by increased drag due to attached mussels. Small mussels can get into engine cooling systems causing overheating and damage. Navigational buoys have been sunk under the weight of attached Zebra mussels. Fishing gear can be fouled if left in the water for long periods. Deterioration of dock pilings has increased when they are encrusted with Zebra mussels. Continued attachment of zebra mussel can cause corrosion of steel and concrete affecting its structural integrity.
Quagga mussels were discovered in Lake Mead in Nevada on Jan. 6, 2007, and later throughout Lake Mead’s lower basin. It was the first discovery of either of these mussels west of the Continental Divide. Subsequent surveys found smaller numbers of Quagga mussels in Lakes Mohave and Havasu in the Colorado River, and in the Colorado River Aqueduct System which serves Southern California. Surveys in August found Quagga in Lake Dixon and San Vicente Reservoir in San Diego County. All reservoirs, lakes and watersheds receiving raw Colorado River water have been exposed to Quagga mussels. The first confirmed find of Zebra mussels in California occurred at San Justo Reservoir Jan. 10, 2008.

Quagga/Zebra mussels accumulate organic pollutants within their tissues to levels more than 300,000 times greater than typical concentrations in the environment. The mussels’ wastes significantly lower the oxygen levels, lowering the pH to an acidic level and generating toxic byproducts. The mussels have also been associated with outbreaks of botulism poisoning in wild birds.

Zebra mussels heavily colonize hard substrates while Quaggas colonize both hard and soft substrates. It appears as though Quaggas colonize deeper than Zebra mussels, infesting a wider range of habitats. In locations where both mussels exist, the Quagga mussel appears to compete with the Zebra mussel, eventually replacing it. Quagga/Zebra mussels clog water intake structures, such as pipelines and screens, reducing pumping capabilities for power and water treatment facilities. Recreation-based industries and activities are also affected by the mussels which take up residence on docks, breakwalls, buoys, boats and beaches. For boaters, Quagga/Zebra mussels increase drag, clog engines causing overheating and can affect steerage. Wakeboard boats and ballast tanks need to be treated as well.

Quagga & Zebra Mussel Invasion
Keep this invasive species out of Nevada County

Nevada County Agricultural Commissioner
Nevada County Resource Conservation District
Phone: 530-273-2648
agdept@co.nevada.ca.us
Phone: 530-272-3417
www.ncred.org

For more information regarding this serious invasive threat see:
http://www.dfg.ca.gov/invasives/quaggamussel/
http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/