US Army Corps
of Engineers
Waterways Experiment
Station

Zebra Mussel Research Technical Notes

July 1992

Strategies for Zebra Mussel Infestations on Waterway Gauging Stations

Background Gauging stations are installed along waterways or associated with locks and dams to record surface water elevation. Stations usually consist of an instrument shelter, stilling well, and intake (Figure 1). Because of their small size, proximity to nutrient-rich, well-oxygenated, flowing waters, gauging stations are likely to be susceptible to zebra mussel infestations. Gauging stations will likely be one of the most critical areas in a lock for zebra mussel infestation.

Additional information For additional information, contact the author of this technical note, Dr. John Ingram, U.S. Army Engineer Waterways Experiment Station (WES), (601) 634-3048. Dr. Ed Theriot, WES, (601) 634-2678, is Manager of the Zebra Mussel Research Program.

Concerns Critical components of the gauging station susceptible to zebra mussel infestations are the intake, stilling well, and float. If the intake becomes clogged, rapid fluctuations in water surface elevation could be dampened in the stage measurement and recording. Also, if the float (that is, for a floating gauge station) becomes infested, the reading will change from a previous calibration due to the change in weight and submergence of the float.

Need for inspection Because of the likelihood of zebra mussel infestations in waterbodies in the northeastern and central United States in 1992 or 1993, personnel should inspect gauging station intakes, stilling wells, and floats carefully at least once a year when water temperature is greater than 54° F. The outer portion of the intake should be examined. If infestations are not observed on the outer portion of the intake, zebra mussels are unlikely to exist farther up the chamber or within the still well. These areas will probably not be suitable for zebra mussels since they are usually stagnant and lack sufficient levels of dissolved oxygen.

An inexpensive zebra mussel monitoring device can be made from polyvinyl chloride (PVC) pipe or plate or a concrete or ceramic tile. Any of these can be attached to a nylon rope or cable and secured to a protected area near the intake. Zebra mussels will attach to the test substrate, which can be easily pulled out of the water and inspected.

Prepared and published by the Zebra Mussel Research Program, U.S. Army Engineer Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199.

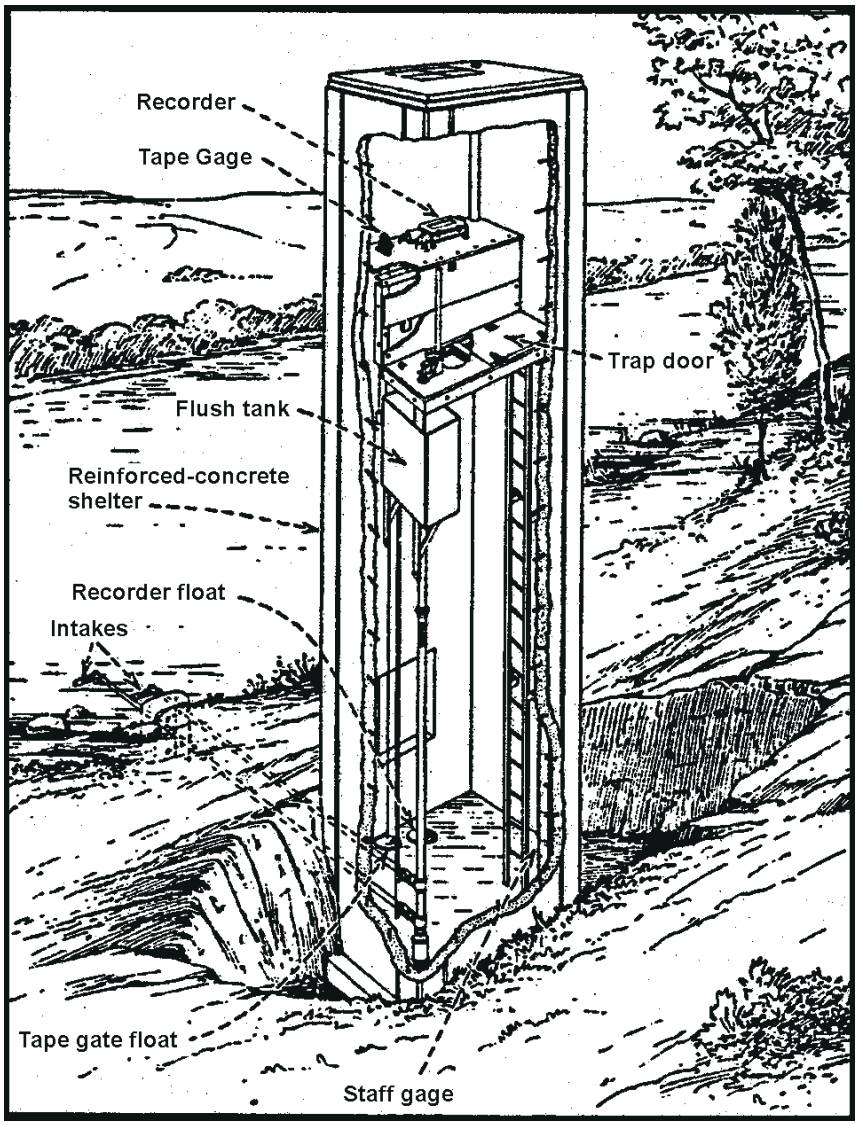

Figure 1. A typical water-stage recorder installation (courtesy: U.S. Geological Survey)

Recommended strategies

Once detected, zebra mussels can be removed with a wire brush, high-pressure water, scrapers, or other physical means. Surfaces can be coated with nontoxic foul-release paint with a slick surface that will prevent zebra mussel attachment during high flow. Alternatively, copper or cuprous oxide containing toxic anti-fouling paints can be applied. Also, to minimize infestations within the well and intake piping, doses of chlorine can be effective. However, coordination with local water quality regulators is necessary before use of chemicals.

During the summer of 1992 and 1993, representative gauging stations will be identified and inspected for zebra mussels. Suggested strategies will be tried on an experimental basis. Subsequent technical notes will contain results of these preliminary studies.