



US Army Corps  
of Engineers  
Waterways Experiment  
Station

# Zebra Mussel Research

## Technical Notes

Section 1 — Environmental Testing

Technical Note ZMR-1-09

June 1993

### Transport of Live Zebra Mussels by Barge— Experiences in the Louisville District, 1992

**Purpose** This technical note discusses the potential for long-distance transport of zebra mussels on commercial barge hulls based on information gathered in the Louisville District. For information on experiences in the St. Louis District, see Keevin, Yarbrough, and Miller (1992).

**Additional information** Contact the authors of this technical note, Dr. Andrew C. Miller (601) 634-2141, U.S. Army Engineer Waterways Experiment Station (WES), or Dr. Lisa E. Barnese (502) 582-5878, U.S. Army Engineer District, Louisville, for more information. Dr. Ed Theriot, WES, (601) 634-2678, is Manager of the Zebra Mussel Research Program.

**Description** On May 11, 1992, zebra mussels were found on Barge 1318-16, owned by American Consolidated Barge Line. The mussels were observed when the barge was in Jeffersonville, Indiana. Mussels were found in clusters every 2 to 3 ft along the bottom edge of the rub rail (about 2 ft from the bilge knuckle). Between 10 and 50 zebra mussels were found in each cluster.

Twenty-three zebra mussels were collected, and their total length was measured with dial calipers. The average shell length was 16.2 mm (standard deviation = 1.5); minimum and maximum shell lengths were 12.9 and 18.8 mm, respectively. Zebra mussels are reported to grow at a rate of 10 to 16 mm/year (McMahon 1990). Therefore, these zebra mussels had probably been on the barge since early 1991.

A copy of the manifest was examined to determine the movement of the barge between the time of discovery and May 1992. Barge 1318-16 had traveled nearly 20,000 miles in the lower and upper Mississippi Rivers, as well as the Illinois, Arkansas, Ohio, and Kanawha Rivers (Table 1). Between May 8 and May 14, the barge was in the Illinois River. Zebra mussels probably have been in the Illinois River since 1990, because adults were found attached to native mussels and other objects in early 1991. It is likely that zebra mussels attached to Barge 1318-16 in May 1992 while it was in the Illinois River.

Between mid-May 1991 and May 1992, the barge traveled nearly 14,000 miles throughout the inland waterway system (Table 1). When a barge goes through a lock, there is always the potential for scraping the side of the chamber wall

and dislodging attached objects. It is very likely that barges are mainly responsible for the rapid spread of adult zebra mussels throughout the inland waterway system.

- References** Keevin, T., Yarbrough, R., and Miller, A. C. 1992. "Transport of Live Zebra Mussels by Barge—Experiences in the St. Louis District, Spring 1992," Technical Note ZMR-1-07, Zebra Mussel Research Program, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- McMahon, R. F. 1990. "The Zebra Mussel: U.S. Utility Implications," EPRI GS-6995, Project 1689-24, Electric Power Research Institute, Palo Alto, CA, pp 1-70.

**Table 1**  
**Movement of Barge 1318-16 and Cumulative Miles Traveled on Major Waterways**  
**(January 1, 1991, to May 11, 1992)**

Arrival	Departure	River	Mile	Cumulative No. of Miles Traveled
01/01/91	01/02/91	Tennessee Chute	3.3	0.0
01/02/91	01/07/91	Lower Mississippi	725.1	3.5
02/09/91	02/10/91	Lower Mississippi	585.0	1,399.2
02/10/91	02/11/91	Arkansas	19.0	1,786.7
02/19/91	02/20/91	Arkansas	118.0	1,889.3
02/22/91	02/22/91	Upper Mississippi	19.0	2,398.3
02/22/91	02/22/91	Lower Mississippi	599.0	2,978.3
02/22/91	02/22/91	Lower Mississippi	685.0	3,064.3
02/23/91	02/26/91	Ohio River	976.0	3,337.6
03/27/91	03/27/91	Ohio River	202.0	4,159.6
03/27/91	03/27/91	Kanawha River	1.0	4,224.2
03/29/91	03/29/91	Kanawha River	69.2	4,292.4
05/08/91	05/08/91	Illinois River	119.7	5,414.5
05/14/91	05/15/91	Illinois River	52.0	5,482.2
05/15/91	05/17/91	Upper Mississippi	11.0	5,741.2
05/17/91	05/18/91	Ohio River	976.2	5,756.8
05/19/91	05/19/91	Lower Mississippi	847.0	5,867.9
06/20/91	06/27/91	Lower Mississippi	889.0	7,303.1
06/28/91	06/29/91	Ohio River	976.1	7,372.3
07/01/91	07/01/91	Upper Mississippi	155.0	7,532.0
07/02/91	07/02/91	Upper Mississippi	178.0	7,555.0
07/07/91	07/07/91	Illinois River	280.0	7,875.0
08/29/91	08/29/91	Illinois River	29.0	8,222.2
08/29/91	09/01/91	Upper Mississippi	174.5	8,294.7
09/02/91	09/03/91	Ohio River	976.2	8,473.8
09/04/91	09/04/91	Lower Mississippi	846.0	8,585.9
09/20/91	09/20/91	Lower Mississippi	212.0	9,372.3
09/27/91	09/27/91	Ohio River	978.0	10,116.6
10/14/91	10/15/91	Ohio River	976.1	10,616.1
10/17/91	10/17/91	Upper Mississippi	91.0	10,711.8
11/08/91	11/10/91	Upper Mississippi	174.5	11,902.3
11/11/91	11/12/91	Ohio River	976.2	12,081.4
11/13/91	11/13/91	Lower Mississippi	913.0	12,126.5
12/14/91	12/15/91	Lower Mississippi	873.0	13,724.1
12/15/91	12/17/91	Ohio River	976.1	13,809.3
12/22/91	12/22/91	Illinois River	138.0	14,170.0
12/27/91	01/01/92	Illinois River	188.7	14,221.9
01/05/92	01/06/92	Upper Mississippi	174.5	14,454.1
01/08/92	01/08/92	Lower Mississippi	867.0	14,715.1
02/17/92	02/18/92	Lower Mississippi	924.0	16,334.7
02/20/92	02/20/92	Upper Mississippi	129.0	17,129.7
02/24/92	02/26/92	Illinois River	212.4	17,431.1
03/29/92	03/30/92	Illinois River	220.5	17,661.1
04/01/92	04/02/92	Upper Mississippi	174.5	17,925.1
04/03/92	04/05/92	Ohio River	976.2	18,104.2
04/05/92	04/05/92	Lower Mississippi	924.0	18,138.3
04/16/92	04/20/92	Lower Mississippi	107.9	18,974.6
04/29/92	05/01/92	Ohio River	976.0	19,087.3
05/11/92	05/11/92	Ohio River	602.0	19,463.8