

Petenwell's Zebra Mussels

By Bob Koeshall "The RiverRat"

On October 15th.2002, I talked to Mark Endris from the Wis. DNR. We talked in great depth about the Zebra Mussels in Nepco Lake here in Central Wis. and how they got into the lake and river system. There are a couple of ideas that do make sense. Every year there are water ski shows at Lake Wazeecha just up stream from Nepco Lake. Hundreds of boats come and go on that body of water just from the various ski teams who come here to perform from in state as well as out of state. That being said, it would seem quite easy for the Zebra Mussels to be brought here from out of area boats, but our ski team also travels to other waters as well so they could also have brought them back to our waters. I must tell you that at this point there is not proof that they arrived in Nepco from Wazeecha. Our area fishing clubs that travel to other bodies of water to fish also could have transported the Mussels back to our waters. The fact that they are here and how are we going to control the population is more important. I think we need to educate the public about the Zebra Mussels. I know the folks that I have talked with have heard of them, but did not know what they looked like. There are posters of these mussels at the boat landing all over the state. Unless you view the poster at the landings you won't know anything about them. I'll give you some needed information on the Zebra Mussels, and what does it mean to all of us now that they are here.



We know that they entered the Wis. River System from Nepco Lake via the spill way. From here they migrate down stream to the flowage. The pictures to the left show what they look like. If you see these mussels on your body of water, call your local DNR field office. Tell them the location where you found the mussels. The mussel's reproductive cycle is one key to its rapid spread and high abundance. Egg production starts when water temperature

warms to about 54 degrees F. A fully mature female mussel may produce several hundred thousand eggs per season. Eggs are fertilized outside the mussel's body and within a few days develop into free-swimming larvae called veligers. Veligers remain suspended in the water from three to four weeks, drifting with the currents. If they don't settle onto firm objects, they die. In fact, most do. Those that find a hard surface quickly attach themselves and transform into the typical, double shelled mussel shape. Within a year, a zebra mussel can grow up to an inch and become sexually mature. Mussels may live four to six years. Zebra mussels generate a tuft of fibers known as a byssus, or byssal threads, from a gland in the foot. The byssus protrudes between the two halves of the shell. These threads attach to hard surfaces with a powerful glue that anchors the mussels in place. Small juveniles can actually break away from their attachments and generate new, buoyant threads that allow them again to drift with the currents and find a new home.

Any hard surface that is not toxic can be colonized by zebra mussels--rock, metal, wood, vinyl, glass, rubber, fiberglass, paper, plants, and other mussels. Zebra mussels can become established regardless of depth, light intensity or even winter temperature. Colonies grow rapidly wherever oxygen and particulate food is available and water

currents are not too swift--generally less than six feet per second. As a few mussels begin to grow, they serve as substrate for additional colonization. In this way, extensive mats of zebra mussels can form on soft lake and river bottoms.

Researchers have found that zebra mussels have built colonies on the sandy and muddy bottom of Lake Erie, a habitat previously thought incapable of supporting the mussels. Researchers believed that these tiny freshwater bivalves could only colonize on hard, underwater surfaces such as rocks, clams and runoff pipes. "In terms of potential zebra mussel habitat, the Petenwell Flowage floor is a soft substrate. This is a wake-up call, Zebra mussels clearly colonize sand and muddy substrates in a lake, and densities of some zebra mussel colonies exceed 70,000 mussels per square meter.

Zebra mussels are filter feeders. They strain water for the food they need. Unused food is bound with mucous into a pellet called pseudofeces which is ejected. Each adult zebra mussel can filter about one liter of water per day. Nearly all particulate matter, including phytoplankton and some small forms of zooplankton are removed. These microscopic plants and animals are the base of the food chain. Small fish such as young sport fish or forage fish, depend on this food for survival and growth. Native North American mussels have suffered greatly as a result of being encrusted with zebra mussels. Sometimes several thousand zebra mussels are found on a single native mussel. Zebra mussels have severely reduced populations of native mussels. Some mussel species in the St. Croix River are very rare and are officially listed as endangered. As zebra mussels spread, biologists are concerned that these species face imminent extinction.

Because zebra mussels prefer hard surfaces at moderate water depth, water intake structures such as those used by power plants and city treatment plants, are susceptible to clogging by zebra mussels. In fact, since 1989, some facilities located on Lake Erie have reported big reductions in pumping capacity and occasional shutdowns caused by encrusted zebra mussels. Recreational users of water infested with zebra mussels can also be affected. Unprotected docks, break walls, boat bottoms, and engine outdrives can provide the hard surface zebra mussels need to colonize. For you folks that transport your boats from river to lakes etc. you need to take extra precautions to make sure you do not have any mussels in or attached to your boat, motor or trailer. You need to physically look over your entire rig before transporting and again when returning to the flowage. A study was done by the Sea Grant Program studying Zebra Mussels, sent a team to nine public boat ramps, where they examined a total of 49 boat trailers. Depending on the site and time of day, up to nearly a third of the trailers at some sites could have vegetation entangled on them, and these plants had adult zebra mussels on them. There weren't many adults (1-8 per trailer), it was observed that a single foot of stem length with more than a thousand adult mussels on it, that suggests that the potential for a single trailer transferring hundreds, if not thousands, of adults is great. And transferred adults, rather than the veligers, the authors also suggest, are the likely predecessors of new populations. Veligers drift and separate with the currents, whereas adults are likely to stay put and aggregate. Later on I'll talk more about how to watch for the mussels .

How can the zebra mussel invasion be controlled

Research on zebra mussels has tripled since 1990. Research has focused on understanding mechanisms regulating zebra mussel reproduction; however, studies on the effects of toxic chemicals and on non-reproductive roles of neurotransmitters have also been done. In studies of zebra mussel reproduction, investigating both internal and external biochemical regulators of reproduction, it was found that serotonin, a neurotransmitter in both mussels and mammals, can activate spawning in both male and female zebra mussels, support the hypothesis that serotonin is the internal physiological activator of spawning in zebra mussels and are presently conducting experiments directed at cloning the gene mediating the spawning response. Extracts from algae have also recently been shown to activate spawning in zebra mussels and experiments to identify the active substances are in progress. These substances may be important in synchronizing spawning of male and female zebra mussels.

There are so many other treatments that have been tried with some success, but it is costly, in the millions of dollars for the industries that need the waters of our state for generation of power, and other industries along our river system. It will cost all of us more money for the cost of keeping water intakes, cooling systems, etc. etc. Their costs go up you know ours will as well.

The Algae Connection to Zebra Mussels.

Any of us that have fished the Petenwell flowage knows all about the Algae Blooms. I have seen it so thick that crows can land right up on it and not go through.. Well folks, it's only going to get worse in the future. The Zebra Mussels are known to increase the algae bloom. Damage to physical property may approach billions, but arguably the mussel's greatest effect is on the environment. Because they eat plankton, zebra mussels disrupt the food web, from the bottom up, wherever they take hold. They are presumed to have contributed to, if not actually caused, blooms of toxic algae. And wherever they take up residence, they have wiped out native mollusks by colonizing their shells, causing them to starve. The water quality that has improved since the 80's will now take another hit. I have talked to several fish biologists to find out if the zebra mussels affect walleye. There are many studies out there that are ongoing, so results are not yet known. They tell me for sure the water clarity that will happen as a result of these mussels will change the walleye location in the daylight hours, making for new challenges.

We need your commitment.



Inspect your boat, trailer, and boating equipment and remove any visible plants and animals.

Dispose of them properly so they do not get washed back into the lake.

Drain water from the motor, livewell, bilge, and transom wells while on shore

and **before leaving** any water body. Spray your boat and boating equipment with high-pressure water or leave it in the sun to dry for 5 days before using it again. Dump unused bait in the trash. **Never** release live bait into a water body, its **ILLEGAL** or release aquatic animals from one water body into another. In September, 2001, the state Legislature passed the Boat Launch Law, which makes it illegal to launch watercraft if there may be aquatic plants or zebra mussels attached. Also, in that session, the Legislature passed a law that makes it illegal to introduce invasive species to navigable waters. Invasive species, as currently designated, are Eurasian water milfoil, curly-leaf pondweed and purple loosestrife. Fines under both laws are \$200 for first-time violations, and second violations may go from \$700 to \$2,000 and may include prison. I feel we really need to do all we can to stop the spread of these Mussels. As fisherman, it's important to remember **WE** are able to make a difference by doing just a simple inspection of your boat and trailer etc. We **HAVE** to do a better job here in Central Wis. if we want our children and childrens, children to enjoy what we have. I will continue to monitor and talk with our DNR about their progress and what methods they will use if they will share that info with me.

If you have any questions on anything in this article you can e-mail me at either RiverRat@Fish-Wisconsin.com or [River Rat 54494@yahoo.com](mailto:River_Rat_54494@yahoo.com). I'd like also to thank my friends at Crestliner Boats, Bombardier Motor Corp. Magic products, Lake-link.com, Fish-Wisconsin.com, Fishtheriver.com, Landbigfish.com, , CharlieBrewer tackle, Lowrance locators, St.Croix Rods, Heckels marine, Amherst Marine, Comprop Props, ISG Jigs, Reeds Sporting Goods, Big Fish Tackle Co., Ipsglass.com, Thermoilbatteries.com, Pepsi of Americas, Beckman nets, Trojan Batteries, Black-Widow Fishing Line, TICA Reels, Minn-Kota Trolling, motors, Austackle Lures, Exciter Baits, Today's Tackle Co., Jere's Bait and Tackle, Misty's Menu, Tennessee Trailers, and others who have helped me along the way. **This article MAY NOT be reproduced, or used in any way without my written permission.**

Bob is a Licensed Wisconsin Fishing Guide, and owner of Gone Fishing Guide Service. Specializing in Walleyes, on the Wisconsin River System. He is also an outdoors field reporter for many fishing web sites, Author, Historian on the Wis. River and the Petenwell Flowage in Central Wisconsin, and on many Pro-Staff programs for various tackle manufactures, Crestliner Boats, and Evinrude Outboards. He has written many articles on Walleye Fishing, and informational articles on the waters in Central Wisconsin.

**PLEASE CPR ALL FEMALES, THE FUTURE OF FISHING
DEPENDS ON IT!!**