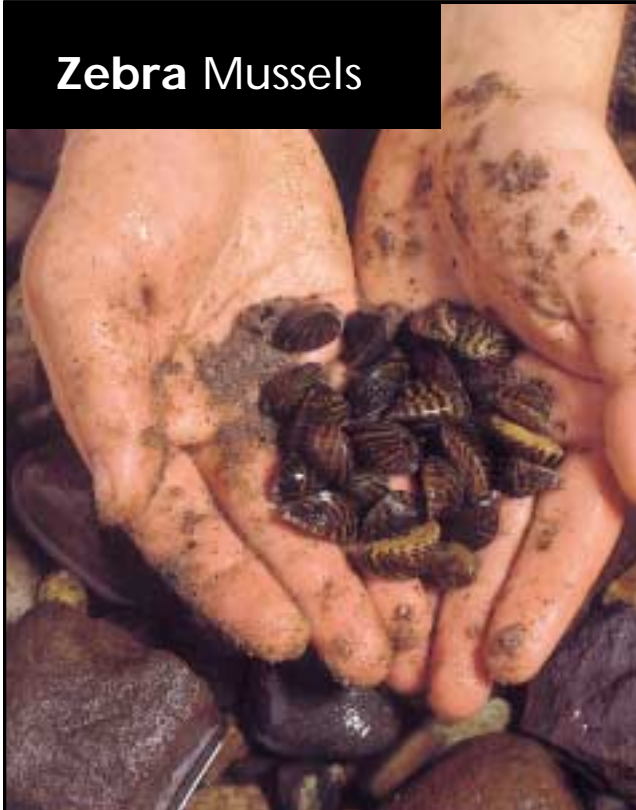


Zebra Mussels



ENVIRONMENT & HERITAGE SERVICE



Zebra Mussels in Northern Ireland

Zebra Mussels

Most people who spend time near the water will have heard of the zebra mussel. Many in the Lough Erne system will have seen it attached to boats, piers or stones. As a species not native to Ireland it can cause problems for water users and could have undesirable ecological impacts. This leaflet describes how to prevent its spread to other lakes and rivers outside the Lough Erne system.

WHERE DID THEY COME FROM?

This undeniably pretty dark and pale striped shellfish was probably introduced into the Lower Shannon Navigation, on the hull of a boat imported from abroad, in 1993 or 1994. Since then it has spread steadily northward along the navigation network and has now colonised Lough Erne. Ireland is only the latest part of the northern hemisphere to be affected by this invasive species. It first began to spread from its original home in the Caspian and Black sea basins with the construction of canal networks across Europe in the late 1700's and had reached England by 1824. They had a major impact in North America in 1986.

ZEBRA MUSSEL LIFE HISTORY

Zebra mussels live for 2 to 3 years and rapidly increase their numbers by releasing millions of microscopic young. These swim weakly in the water and so are moved downstream by currents. They settle on hard surfaces after about three weeks and soon grow into the shape of miniature adults, reproducing when less than a year old under favourable conditions.

THEIR SPREAD TO NORTHERN IRELAND

They first arrived in Lower Lough Erne in 1996. They are highly invasive and well adapted to local waters. Research work has indicated that the population has grown between 100 and 1000 fold from 1998 to 1999 resulting in population densities into the tens or hundreds of thousands per square metre on suitable substrates throughout Upper and Lower Lough Erne.

PROBLEMS ASSOCIATED WITH THE ZEBRA MUSSEL

Fouling growths

Zebra mussels form large colonies that attach to almost any hard surface including: stonework, locks, water intakes, insides of pipes, boat hulls, mooring ropes, buoys, wooden structures and plants. It has already effected public and private water abstraction stations on Lough Erne. Experience has shown that the physical impacts of mussel growth on man made structures, though expensive and initially troublesome, can be overcome by design and maintenance.

Ecological impacts

Other impacts on the general ecology are less predictable. Fouling may swamp the spawning grounds of lake spawning fish such as arctic charr and pollan. Zebra mussels feed by filtering the surrounding water and each individual sieves as much as one litre per day. Filtering out the algae does not remove all nutrients from the water. Evidence from North America indicates that the combination of nutrient rich and clear water resulting from zebra mussel activity helps the growth of water plants, potentially congesting areas once vegetation free. There is also a risk that some potentially toxic blue-green species may become established in areas where there are elevated levels of some nutrients. We simply don't know what food chain effects zebra mussels will have on all the bottom living animals in infested lakes, whether or not fish feeding patterns will change, and which other animals and fish will suffer or benefit.

HOW IS IT SPREAD?

The main vector for the spread of the zebra mussel is boats. They attach to the hulls of boats and are transferred to new areas when infested boats are launched in new waterways. They can also be spread by any structures moved from zebra mussel infested areas to zebra mussel free areas e.g. pumps, pipes, tanks, fishing gear, submerged sticks etc.

WHAT YOU CAN DO TO HELP

Boat users are asked to follow the following code of practice at all times:

Keep boats free of Zebra Mussels

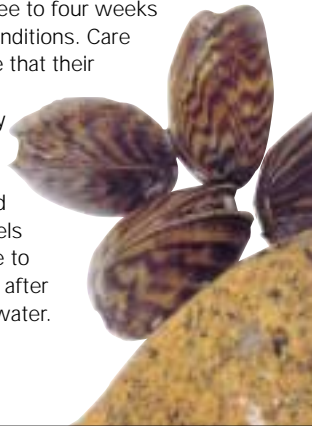
1. Keep boats in the water for the shortest possible time. Zebra mussels spawn in summer and their actively swimming larvae settle from June to November. Boats left in the water over this period are most at risk from zebra mussel fouling.
2. Keep boats clean. Drain all bilge water to remove any larval stages and ensure that all weed is removed from trailers and boats before leaving a zebra mussel area.
3. Consider using antifoulants. If boats are immersed for prolonged periods antifoulants can reduce the numbers of settling mussels by killing or discouraging them from settling. Some products are designed for use in freshwater, nevertheless ensure you use an approved brand using the instructions given. When disposing of old cans and when scraping down boats ensure these are not released to the water.

Guidelines for boat hull cleaning, painting and antifouling are available from Miss Anne Blacker, Water Quality Unit, Environment and Heritage Service Calvert House, 23 Castle Place, Belfast, BT1 1FY
e-mail: anne.blacker@doeni.gov.uk

REMOVING ZEBRA MUSSELS FROM BOATS

1. Drying out boats

Zebra mussels will eventually die once removed from the water; but this may take three to four weeks or more under damp and dull conditions. Care is therefore necessary to ensure that their transfer is avoided. Bilge water should be drained to remove any larval stages and outboard engines stored vertically. Ideally boats should be stored in dry and airy conditions where the mussels can dry out, but the easiest time to remove mussels is immediately after the removal of a boat from the water.





2. Steam cleaning

If infestation is heavy or if there is insufficient time to kill the mussels by drying, an effective method for cleaning a boat is by high-pressure steam cleaning. This will remove the great majority of mussels and kill the remainder. This is because they will be killed by the steam, but remember the temperature needs to exceed 40°C and large mussels need longer to be killed. Steam cleaning facilities are available at most filling stations for a small fee. The material removed should not be allowed to enter a water body of any sort; always ask the garage attendants about what you propose to do and get a receipt.

3. Cleaning outboard motors

Flushing removes cooling water that may have free swimming larvae but this will not remove attached individuals. Storing outboard engines will drain much of the water, then leave in a dry airy place for at least three weeks. Heavily fouled motors should be serviced.

Buying and selling boats

Should you buy a used boat be careful about the possibility of introducing zebra mussels - have your boat cleaned.

Management of marinas and slipways

At marinas and slipways on lakes that are zebra mussel free, a special lookout should be made for zebra mussel infested boats. Measures should be taken to prevent them launching until they are properly cleaned.

For further information, or if you find zebra mussels outside the Erne system, please contact:

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The Northern Ireland Zebra Mussel Control Initiative is supported by the following organisations:

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