

The reading passage says that the zebra mussel's invasion from Eastern Europe to North America is unstoppable and causes threat to freshwater fish, judging from human transportation, mussel's domination and fish declination. However, the professor argues that some ways makes it under-control and serious threat to fish is unclear.

First, the passage says that the mussel which spreads out along canals in Europe survived in the ballast water of ships, being carried to North America. However, the professor argues that traveling across the ocean needs the way that taking on ballast water in Europe and emptying into North American waterways. She explains that ~~requirement that~~ emptying out the fresh ballast water and refilling with salty ocean water when ship is still in the ocean makes the mussels be killed.

Second, the passage states that strong feature, high reproduction and even no predator make zebra mussel dominate in their new habitats. However, the professor argues that Europe aquatic birds could sooner change their eating habits to zebra mussels afterwards. She further points out that large ~~amounts~~ ^{numbers} of mussels that birds can eat shows that they are unlikely dominated.

這句不應該是轉折語氣吧...

Last, the passage claims that mussels who eat plankton would compete with many freshwater fish, causing the declination in fish population. However, the professor argues that fish that eat plankton will truly be affected by zebra mussels. On other fish, she further explains that, nutrients generated by mussels feed the fish at the bottom of lake, making them increase.

Reading:

The zebra mussel, a freshwater shellfish native to Eastern Europe, has long been spreading out from its original habitats and has now reached parts of North America. There are reasons to believe that this invasion cannot be stopped and that it poses a serious threat to freshwater fish populations in all of North America.

First, the history of the zebra mussel's spread suggests that the invasion might be unstoppable. It is a prime example of an invasion made possible by human transportation. From the zebra mussel's original habitats in Eastern Europe, ships helped spread it out along new canals built to connect Europe's waterways. The mussel can attach itself to a ship's bottom or can survive in the water—called "ballast water"—that the ship needs to take on to properly balance its cargo. By the early nineteenth century, the mussel had spread to the whole of Europe. It was later carried to the east coast of North America in the ballast water of ships traveling from Europe. The way ships have spread the zebra mussel in the past strongly suggests that the species will soon colonize all of North America.

Moreover, once zebra mussels are carried to a new habitat, they can dominate it. They are a hardy species that does well under a variety of conditions, and they have a high rate of reproduction. Most important, however, zebra mussels often have no predators in their new habitats, and species without natural predators are likely to dominate their habitats.

Finally, zebra mussels are likely to cause a decline in the overall fish population in habitats where they become dominant. The mussels are plankton eaters, which means that they compete for food with many freshwater fish species.

Listening:

Contrary to what you just read, there are ways to control the zebra mussel's spread.

2. What's more, it is not so clear that the mussel is a serious threat to fish populations.

3. True, the spread of zebra mussels couldn't be controlled in the past, but that's because people didn't have enough knowledge.

4. In fact, there are effective ways to stop ships from carrying the mussels to new locations.

5. Here's an example.

6. The way zebra mussels usually travel across the ocean is that a ship takes on some fresh "ballast water" in Europe and then empties that water into American waterways when it arrives.

7. Full of zebra mussels, but the ship can be required to empty out the freshwater and refill with ocean water while still out in the ocean.

8. Salt water will kill the mussels.

9. Second, it's true that zebra mussels often don't have predators in their new habitats, but that's only in the beginning.

10. What's been happening in Europe is that local aquatic birds sooner or later notice there's a new food source around and change their habits to exploit it.

11. They switch from whatever they were eating before to eating zebra mussels.

12. And birds can eat a lot of mussels.

13. So zebra mussels aren't so likely to dominate their new habitats after all.

14. Finally, even in habitats where zebra mussels become dominant, is the overall fish population likely to decrease.

15. It's true that zebra mussels may have a negative impact on fish that eat plankton.

16. But on other fish, they can have a positive impact.

17. For example, the mussels generate nutrients that are eaten by fish that feed near the bottom of the lake or river.

18. So bottom-feeding fish populations may increase, even if plankton-eating fish population decrease.