

Consequences Of Zebra Mussel Invasion in the Hudson

Organism	Change: Increase? Decrease? No change?
Unionidae (freshwater pearly mussels)	
Sphaeriidae (fingernail clams)	
Centrarchidae (fish in vegetated shallows e.g. sunfish, pumpkinseed)	
Alosa (open water fish, e.g. shad)	
Phytoplankton/ Chlorophyll A	
Copepods (zooplankton)	
Copepod nauplii (larval stage of zooplankton)	
Bacterial Abundance (decomposers)	
Rotifers (Zooplankton)	
Cladocera (zooplankton)	



Invasive zebra mussels

Cary IES

Native pearly mussels

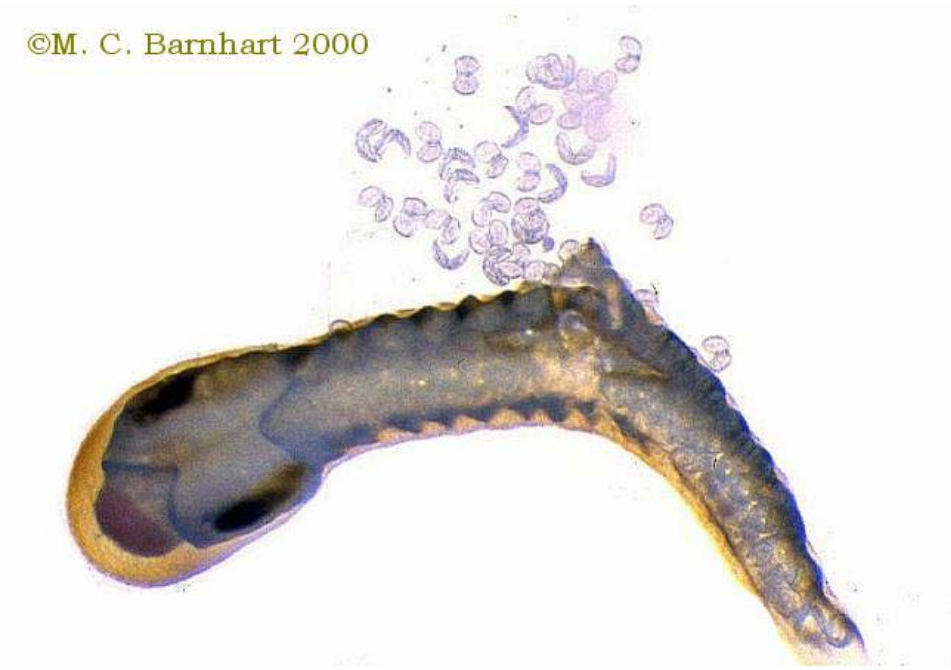


Cary IES

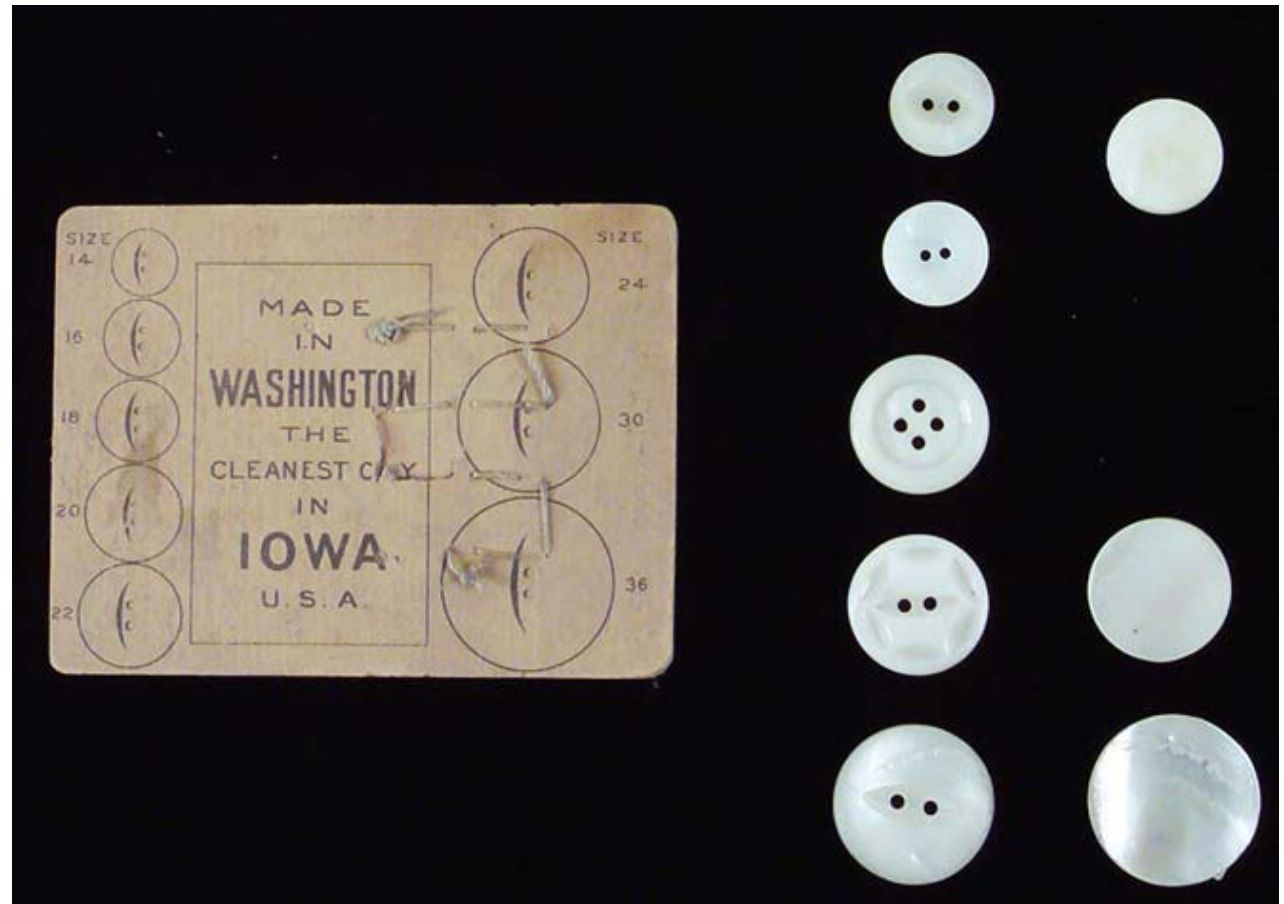
What do you think happened to the native pearly mussel population when the zebra mussels invaded?



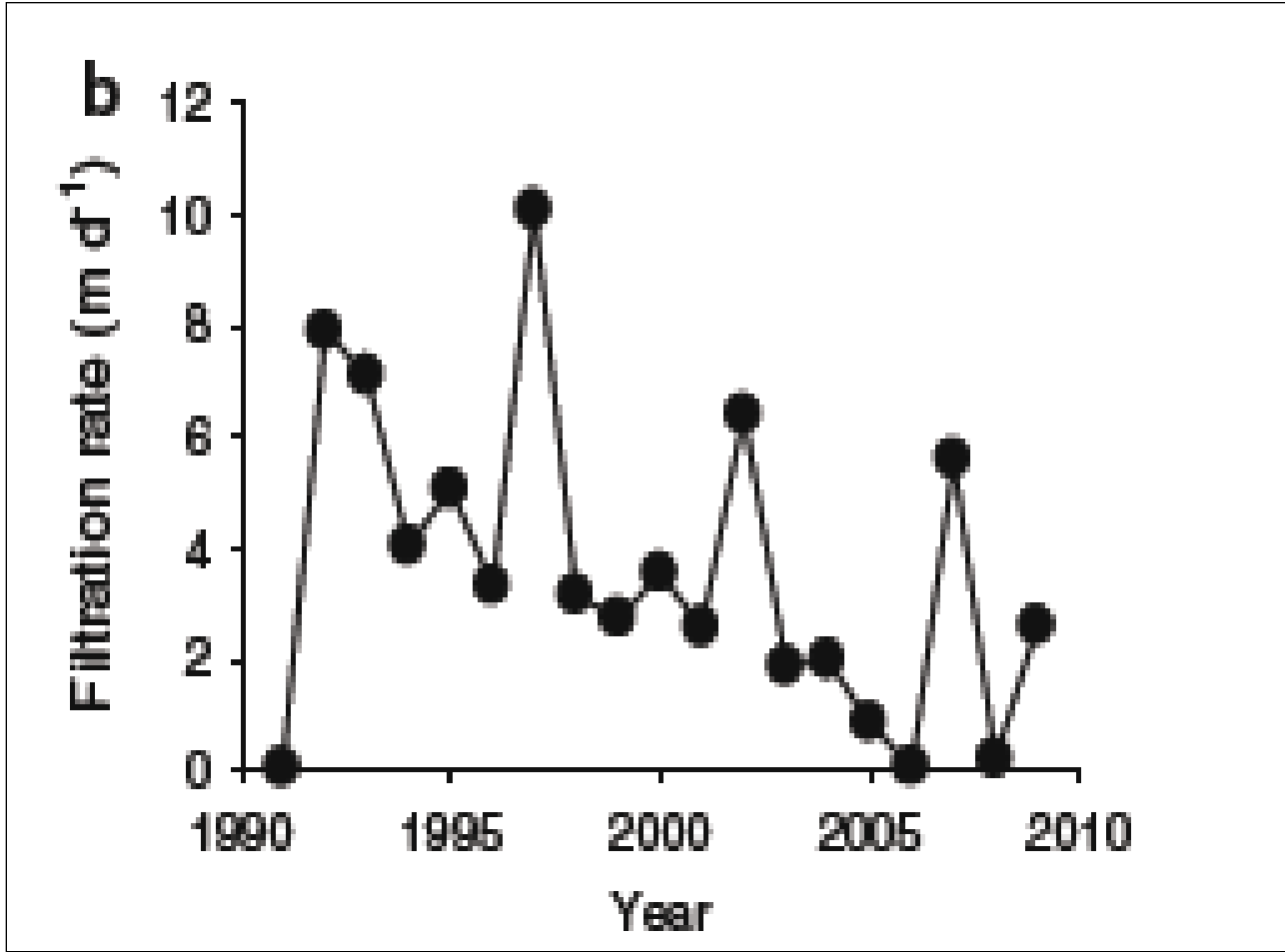
Pearly Mussels Lure Fish then release their larvae (glochidia) which attach to the gills of the fish!



<http://www.youtube.com/watch?v=I0YTBj0WHkU>

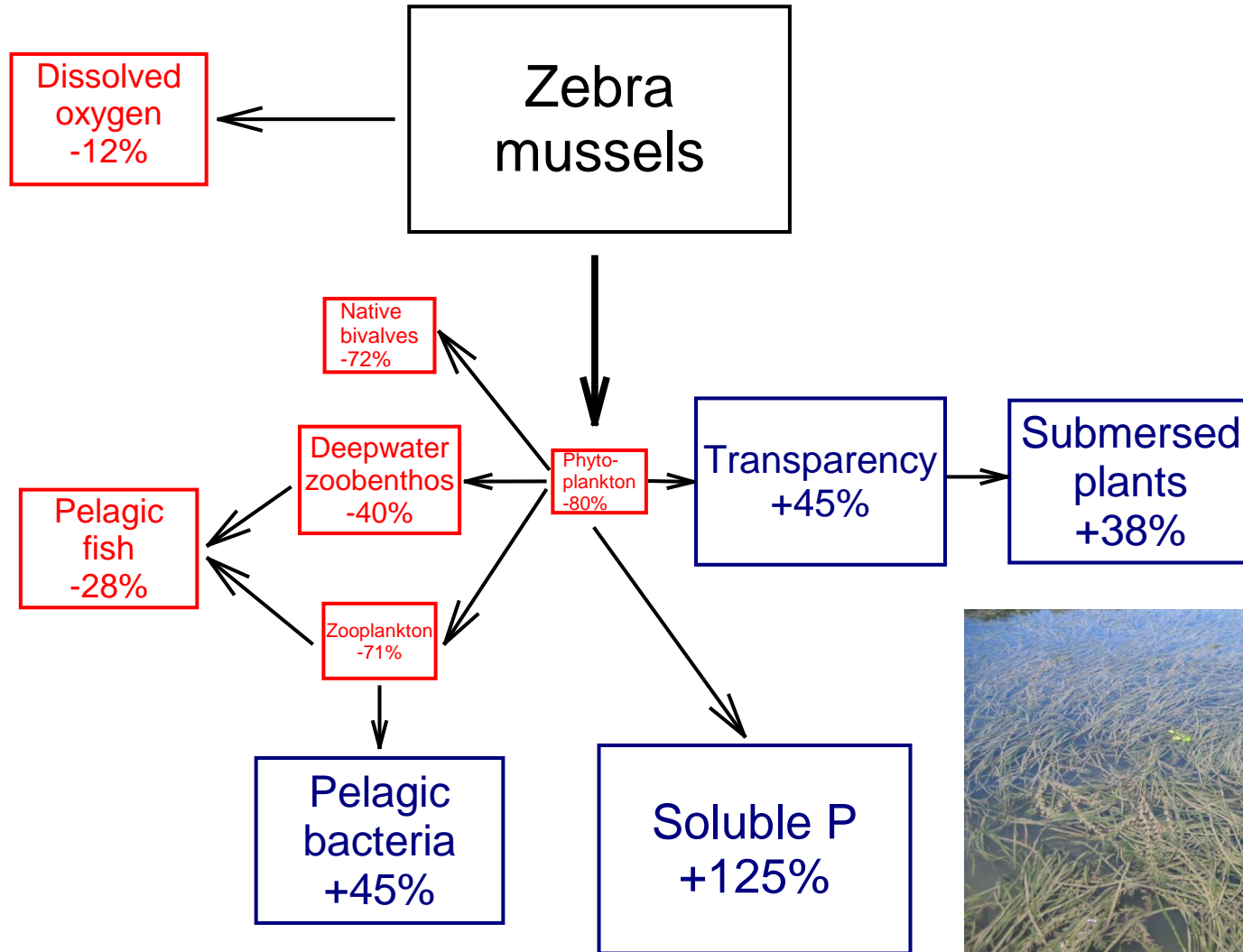


How much water do they filter?

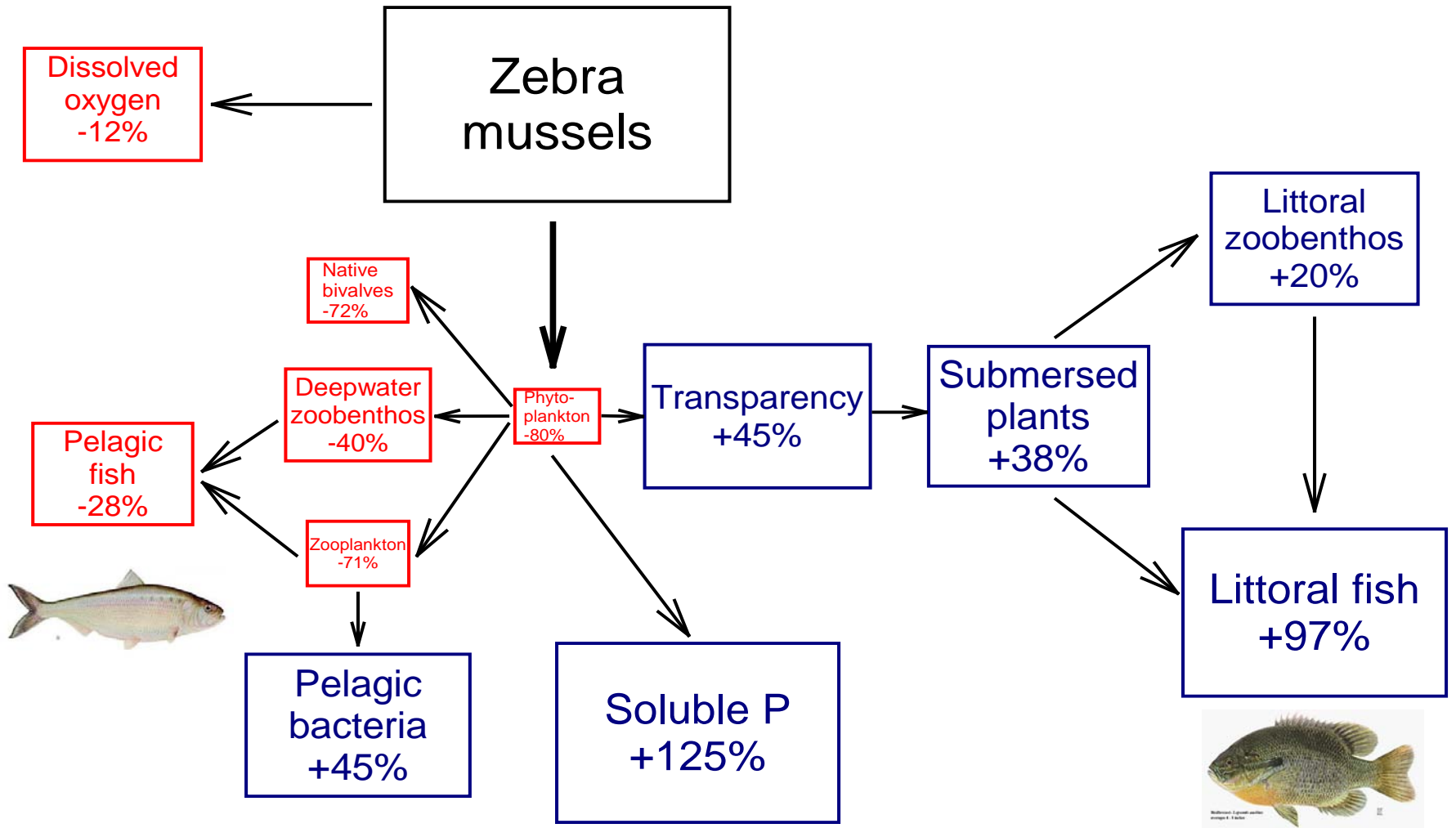


Zebra mussels filter all the water in the Hudson River basin every 1-4 days.

Early Invasion Years, 1993-2004



Early Invasion Years, 1993-2004

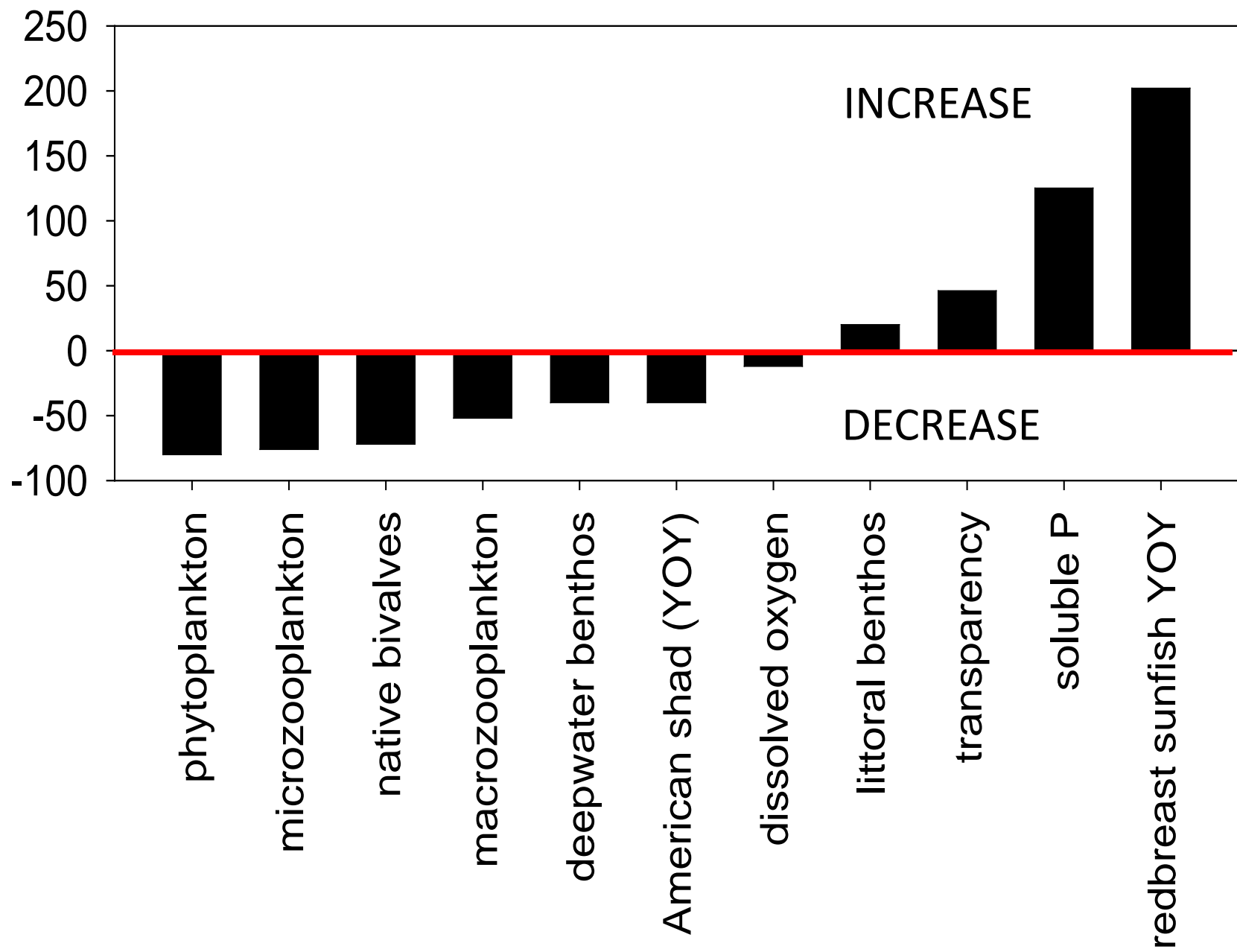


Food web in the open water

Food web in the shallows

[View: Results](#)

Change associated with zebra mussel invasion



Zebra Mussels

Small
Medium
Large

- Scientists noticed a change in the numbers of different size classes beginning about 2005.
- What do you notice?
- Think about the food web: What do zebra mussels eat?
- Do different size classes eat different organisms?

Zebra Mussel Population Dynamics: Size Classes

PACE ET AL.

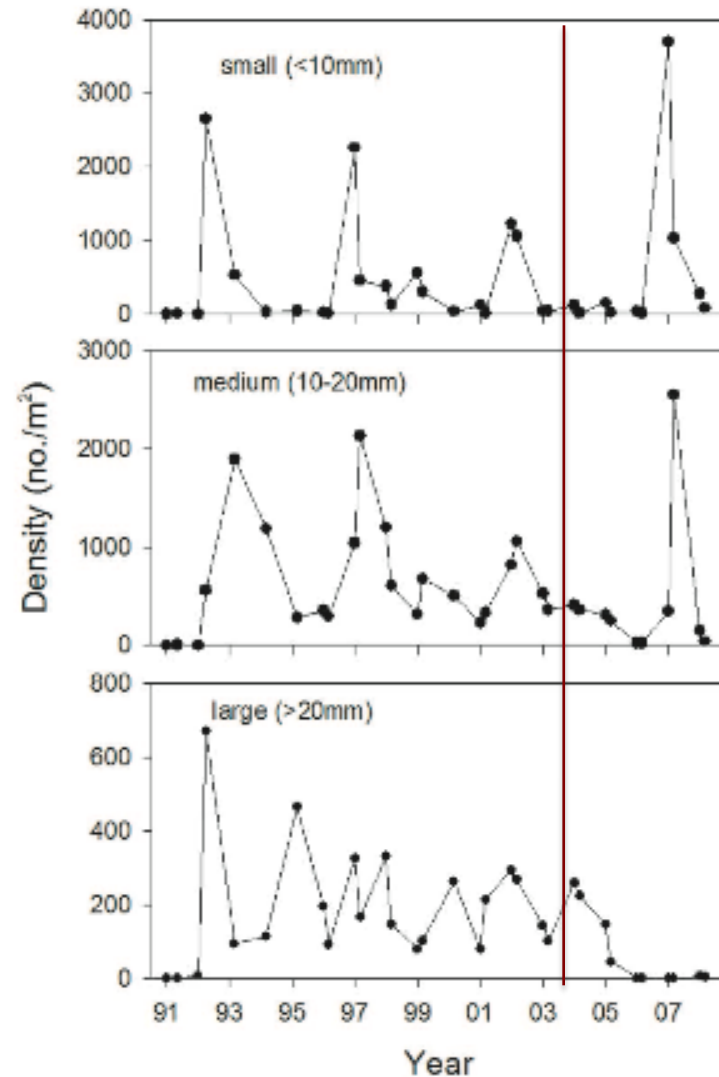
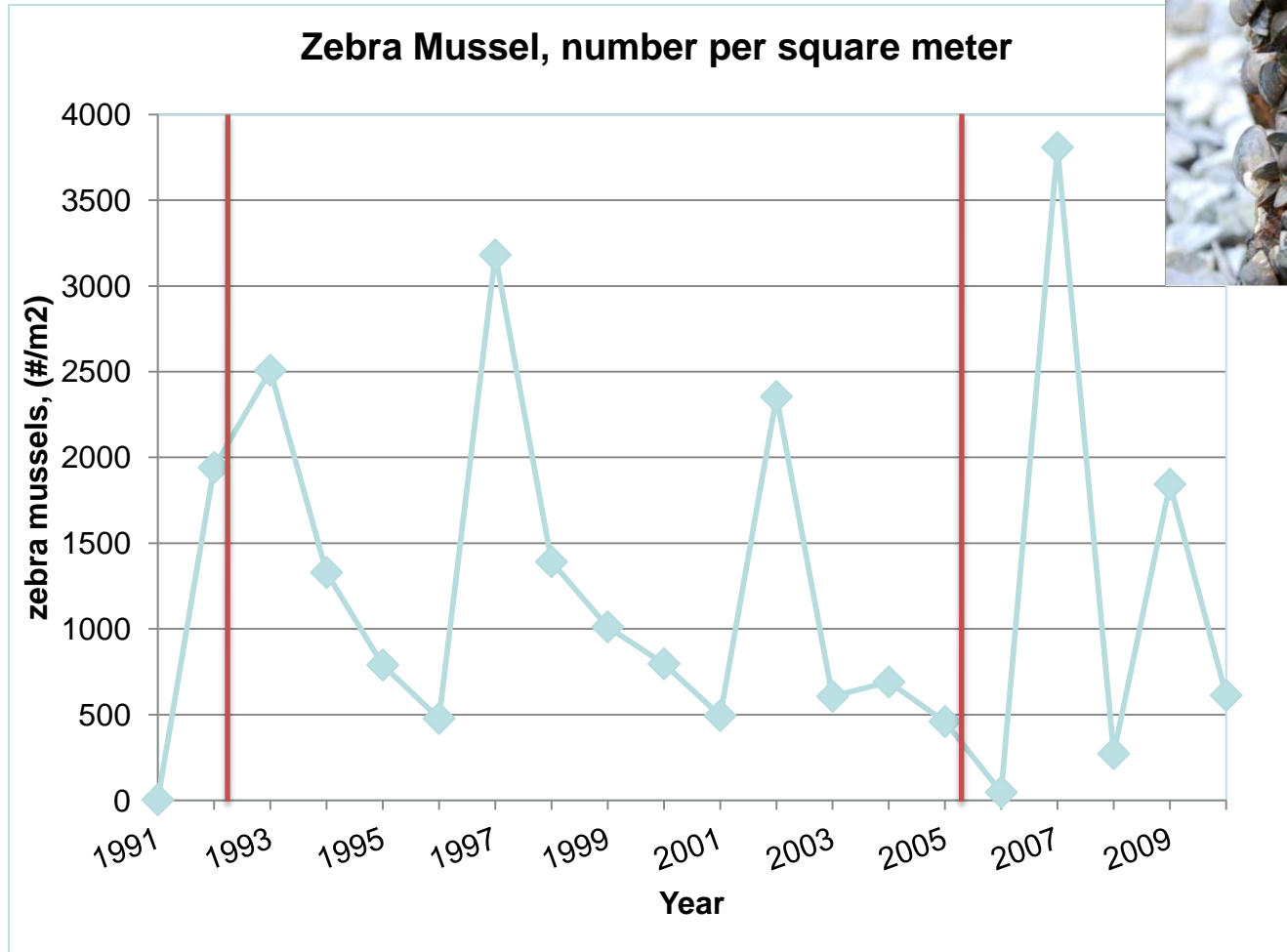
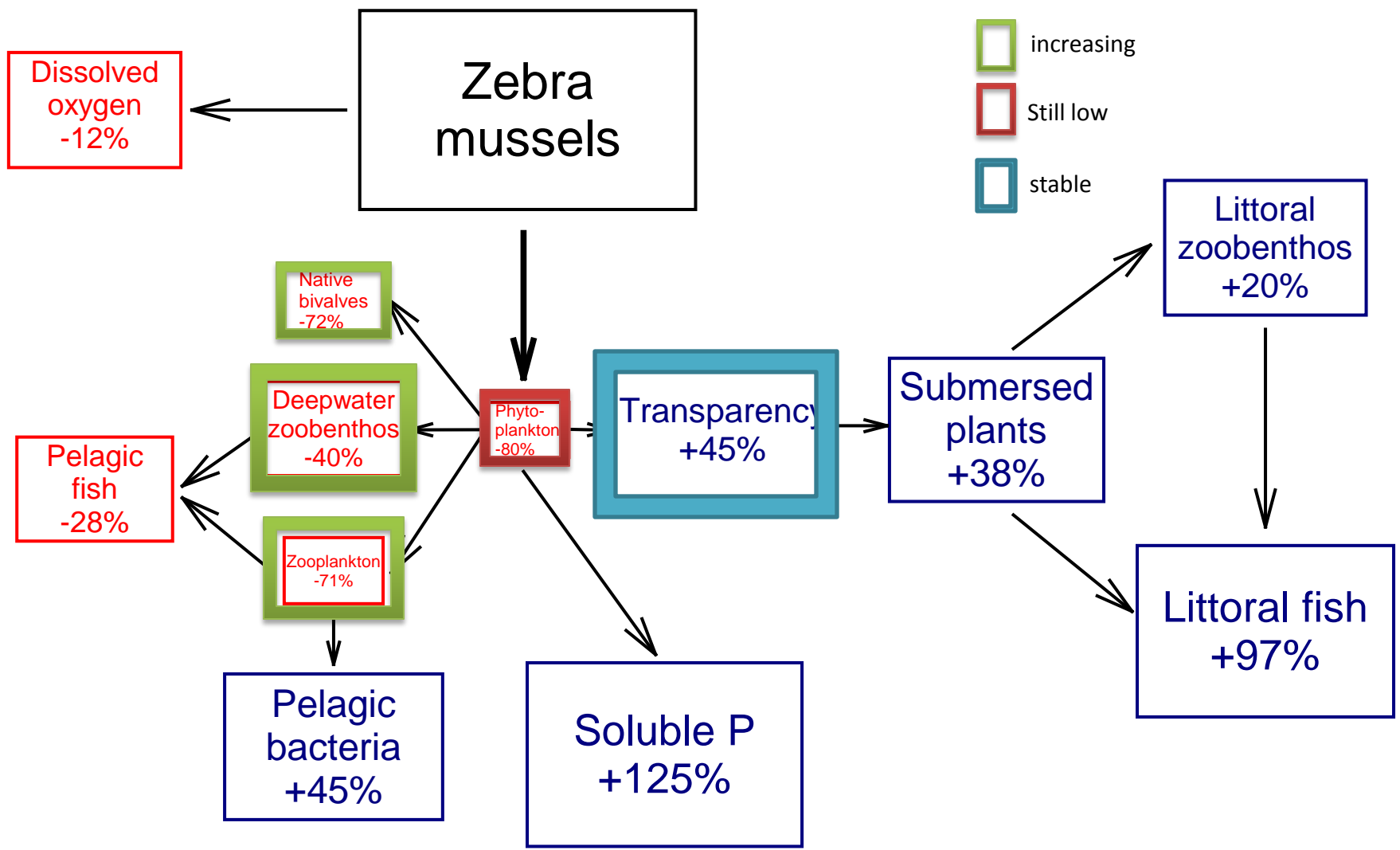


Fig. 1. Zebra mussel population dynamics for small 0–10 mm, medium 10–20 mm, and large 20–30 mm size classes. Data are for the freshwater Hudson River estuary.

What does the population look like now?



Later Invasion Years, 2005-2009



Food web in the open water

Food web in the shallows



**Blue crabs
and
pumpkin seed fish**

**What was
eating the
large zebra
mussels?**

