

## Zebra Mussel Byssus Discs Detaching from Biofilm Coated Substratum

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### Image Article

Zebra mussels (*Dreissena polymorpha*) are the most notorious of the invasive organisms introduced to the Great Lakes in recent years. They, like other surface-fouling mussels in many parts of the world, generally arrive at and attach with byssus discs and threads to substrata of power plants and water pipes that are already spontaneously fouled by the ubiquitous biofilms of proteins, bacteria, and often diatoms through which adhesion would seem to be prevented. The mystery of their attachment is resolved by these images, showing that the mussels' attachment discs actually incorporate those biofilms into their extruded byssus disc adhesive substances, allowing nearly irreversible and strong attachment to the infrastructural substrata with a deterioration-resistant "glue". Generally, water-blast cleaning breaks the byssus threads to leave behind the attached "beards" from both the mussels' feet and on the substratum partners. These Images are for a rare interfacial separation event, that we have learned to reproduce with safe low-surface-energy coatings.

