

# Does Infrared Light Inhibit the Attachment of Zebra Mussels?

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## Overview

My observations over the last 10 years show that although zebra mussels attach themselves to almost any solid object, I have never observed them in the light path of transmissometers deployed for periods of several months in Lakes Michigan and Erie. The purpose of this project is to do a simple test to determine whether or not the light emitted by the transmissometers deters zebra mussels from attaching themselves to surfaces in the light path.

## 2005 Plans

Four transmissometers will be deployed in approximately 10 m of water near the Toledo light #2 in Lake Erie. The mooring will be deployed sometime in June, and will be visited monthly until September. During the monthly visits each transmissometer will be inspected and photographed to record whether or not zebra mussels are attached in the light path. Of the 4 transmissometers, one will never be turned on, one will always be turned on, and the other two will vary between on and off, depending upon the previous state and whether or not zebra mussels are observed. Initially one of the switched meters will be on and the other off. If zebra mussels are observed on the 'on' transmissometer (Note that this will disprove the experimental hypothesis), then it will stay on, if none are observed then it will be switched off. If zebra mussels are observed on the 'off' transmissometer, then it will be switched on (in order to see if the presence of light forces them to relocate), otherwise it will remain off.



***Zebra mussels appear to avoid the infrared light path of transmissometers (rectangular gap in black instrument mounted in aluminum frame depicted above).***



***Zebra mussels attach themselves to almost any solid object, here they have fouled a sediment trap sampler deployed in Lake Michigan.***

### **Scientific Rationale**

Anecdotal observations of optical transmissometers deployed during the last 10 years in Lakes Michigan and Erie show that zebra mussels appear to avoid the light path of the transmissometers. These transmissometers emit a light beam of near infrared light (660-680 nm) for about 1 minute/hour. The observations are not documented, however, and the absence of zebra mussels in the light path of the transmissometers may be coincidental. The work proposed here will determine whether or not these anecdotal observations are due to the presence of near infrared light.