

**Boat of Knowledge in Science
Classroom (BOOKS):
NSF STEM Project**

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Collaborative Workshop for Research and Education
Tsinghua University and Ohio University
Beijing, China (October 13-20, 2013)

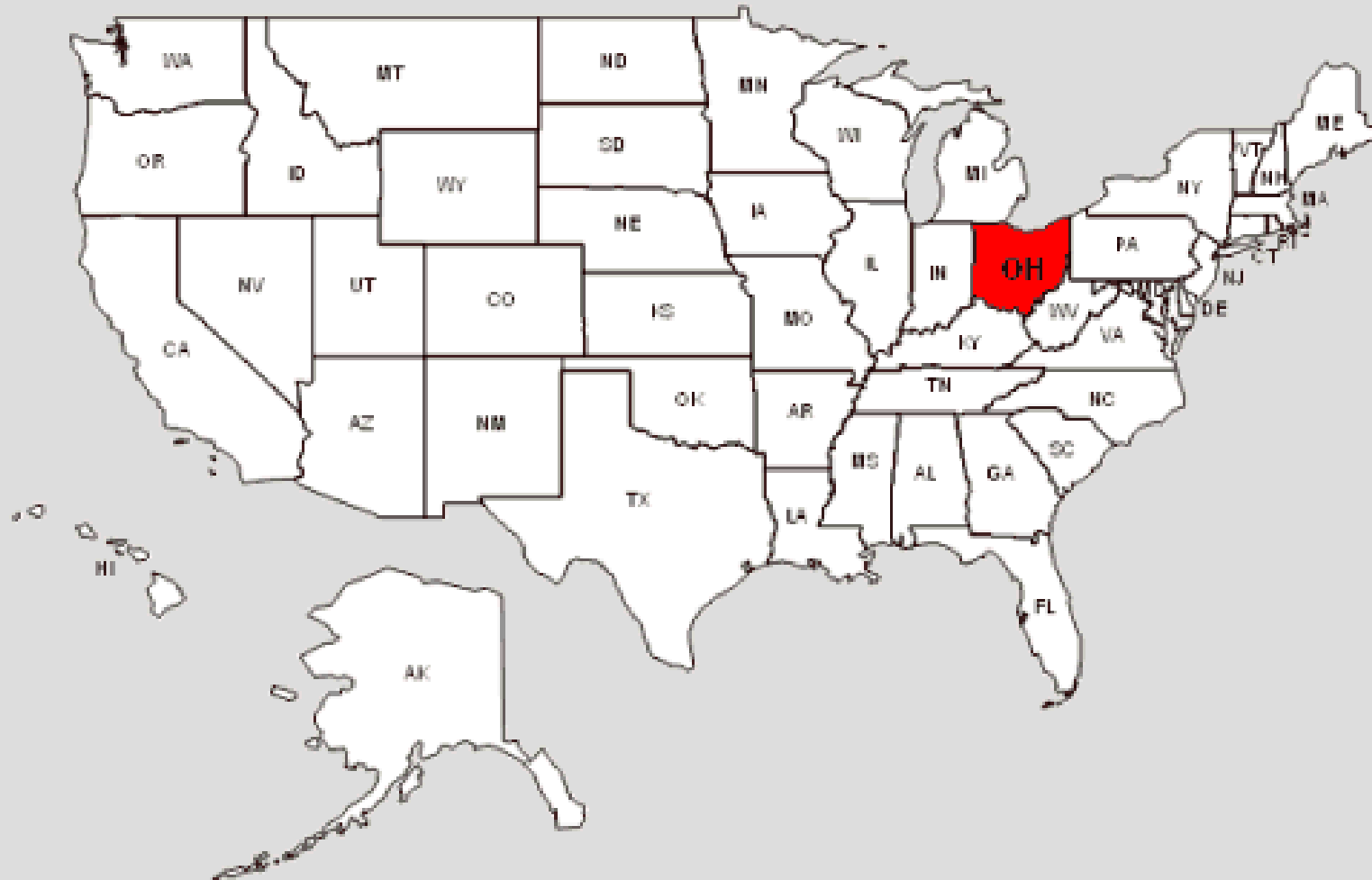
College of Arts and Sciences

College of Education

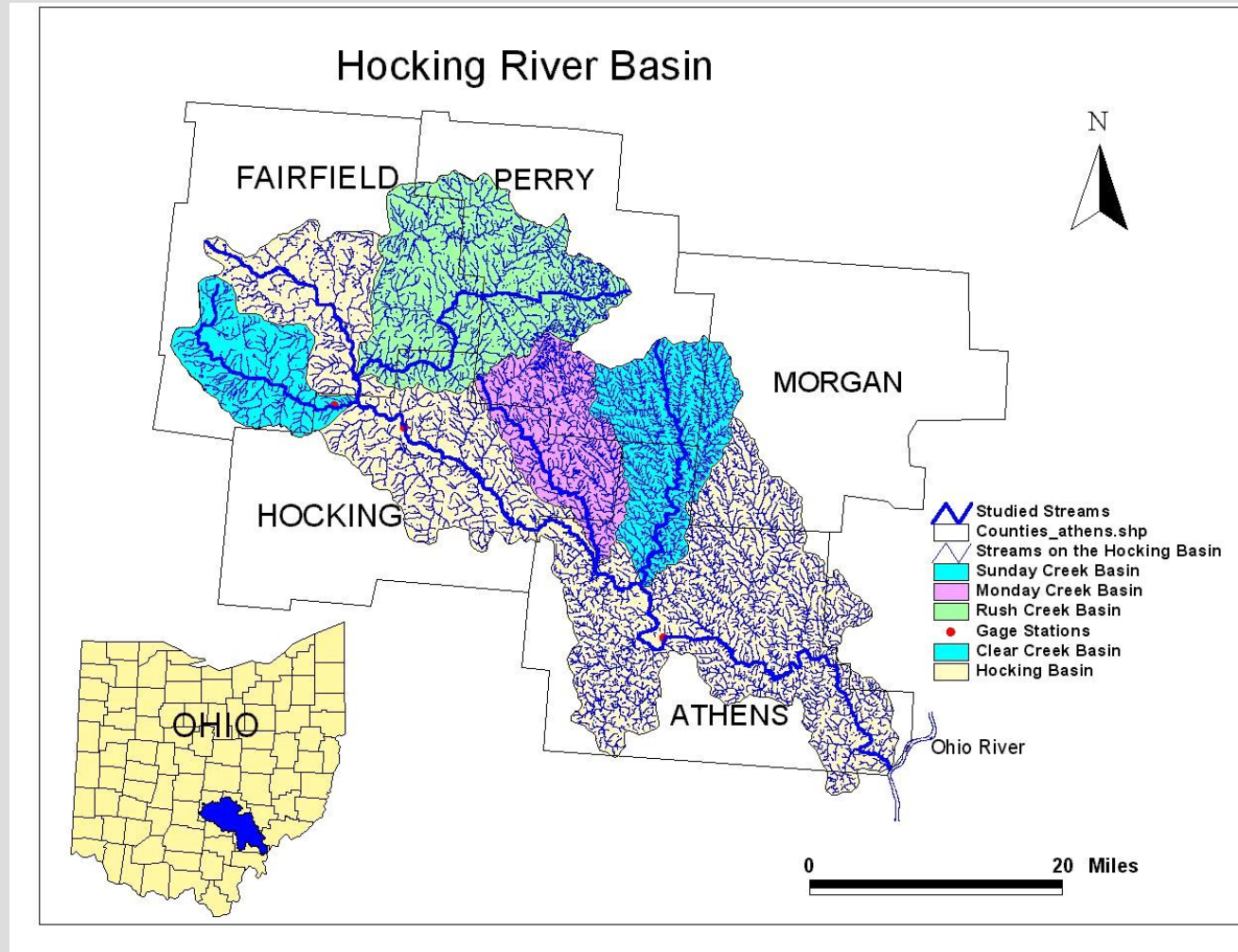


OHIO
UNIVERSITY

Ohio in the United States



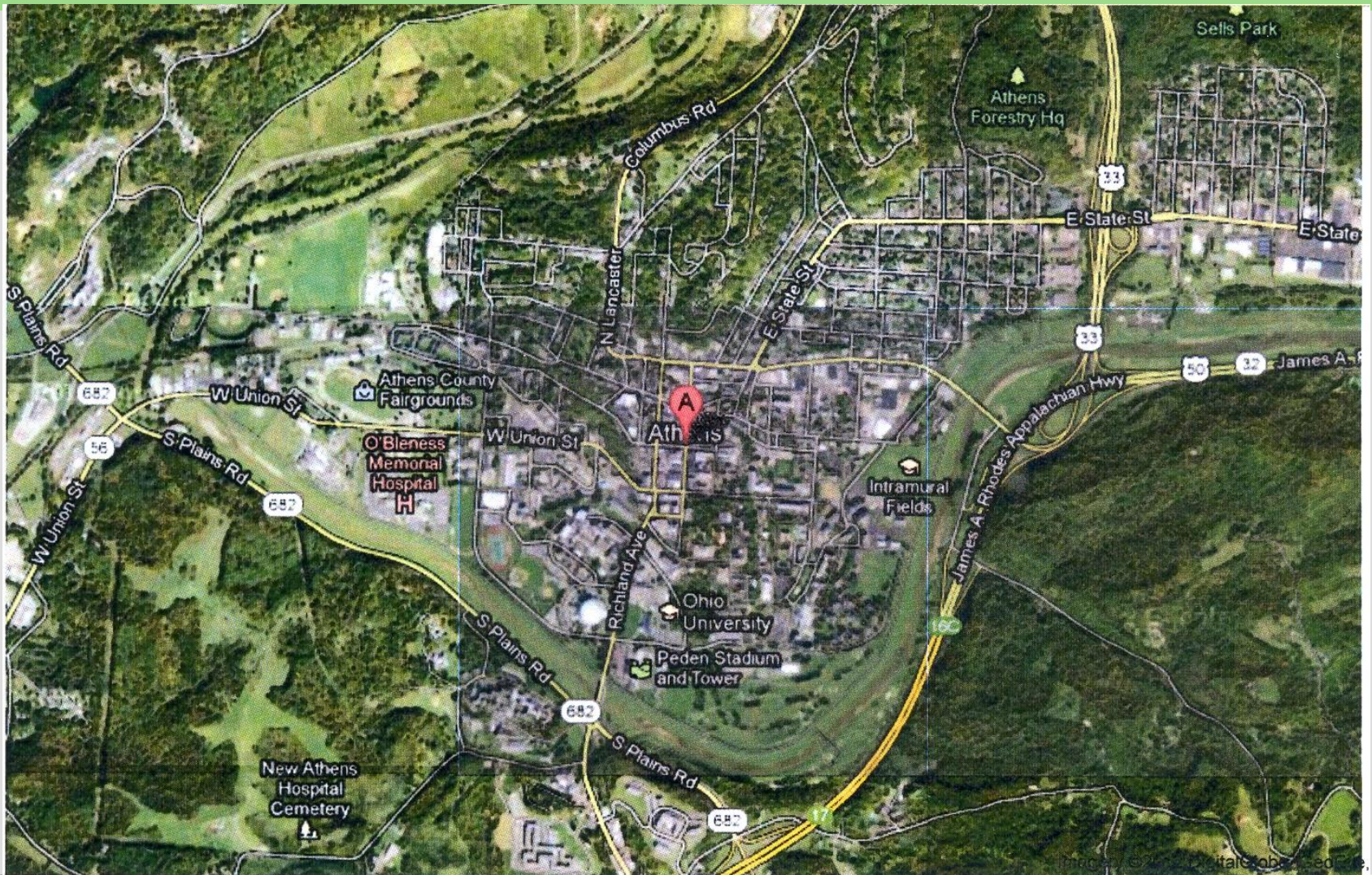
Ohio University on the Hocking River - A Tributary of Ohio River



Flood - Athens, Ohio (1964)



Rechannelization - Athens, Ohio (present)



New Channel - Athens, Ohio (present)



Boat of Knowledge in Science Classroom (BooKS)

- **Dr. Tiao J. Chang**, Professor (**PI**)
 - Department of Civil Engineering
- **Dr. Teresa Franklin**, Professor (**co-PI**)
 - Department of Educational Studies
- **Dr. Kelly Johnson**, Associate Professor (**co-PI**)
 - Department of Biological Sciences
- **Dr. Chang Liu**, Associate Professor (**co-PI**)
 - School of Electrical Engineering and Computer Science
- **Dr. Dave Diggle**, Boat Captain and Project Manager
- **Dr. Barry Oches**, BooKS External Evaluator

Books – Teachers & High Schools

- **Andrea Anderson** - Athens High School
- **Amy Braverman** - Alexander High School
- **Gordon Gifford** - Trimble High School
- **Mike A. Miller** - Marietta High School
- **Ann Ohlinger** - Southern Local High School
- **Joani Powers** - Meigs High School
- **Jeff Slattery** - Athens High School
- **Andy Todd** – Tri-County Career High School
- **Ryan Werry** - Warren High School

Books – Graduate Students

- **Ivan Caballero** - Civil Engineering (Fellow)
- **Elaine Goetz** - Civil Engineering (Fellow)
- **Kal Jaber** - Computer Science (Fellow)
- **Tom Haskell** – Education
- **Tyler Hogue** - Civil Engineering (Fellow)
- **Blake Liberati** – Civil Engineering (Fellow)
- **Andrew Long** - Civil Engineering (Fellow)
- **Chris Stephan** - Civil Engineering (Fellow)
- **Mariah Trush** - Biology (Fellow)
- **Xin Ye** - Computer Science
- **Qing Zhu** - Computer Science

BooKS - Goals

- Enhanced STEM (Science Technology Engineering Mathematics) learning.
- Enhanced understanding of Graduate Fellows in their research subjects through activities and lesson plan development with high school teachers.
- Improved communication and presentation of Graduate Fellows through BooKS activities.

BooKS - Goals (cont.)

- Increased student interest toward STEM through BooKS activities.
- Improved STEM content knowledge of high school classes.
- Professional development opportunities for high school teachers to enhance content knowledge and lesson plan development.

BooKS - Goals (cont.)

- Culture changes of graduate programs by strengthening partnerships of the university and local school districts through the engagement of Fellows, school teachers and students using the BooKS model.

Boat of Knowledge



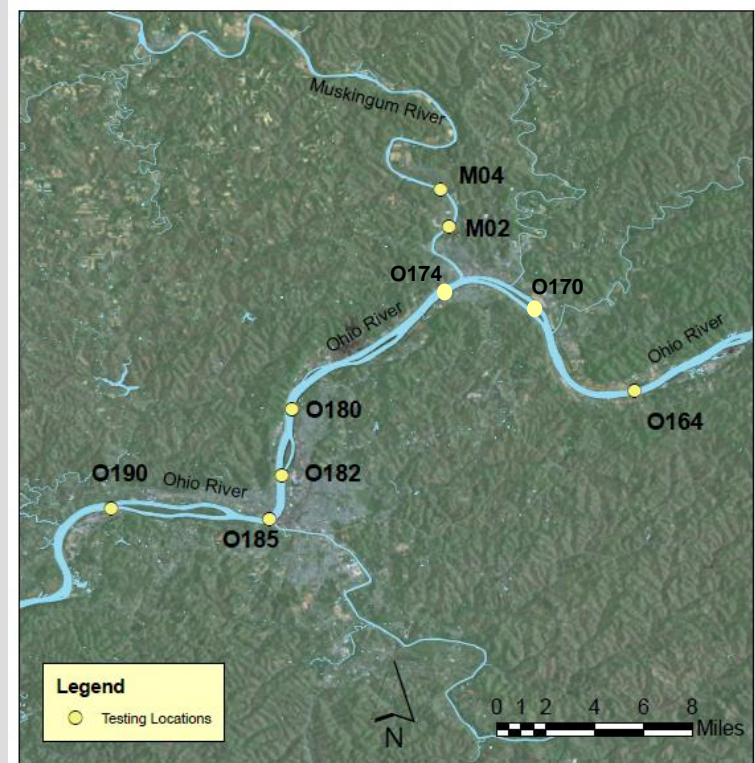
- The 42-foot Boat of Knowledge provides 270 horse power with twin engines.
- It has docked at the Marietta Harbor, Marietta, Ohio.

- The Boat has travelled in the Muskingum River and Ohio River for water sampling.
- It will map the water quality index of the Ohio River from Marietta to Gallipolis, Ohio.



Schools and Testing Locations

Federal Hocking HS	O164
Meigs HS	O170
Gallia Academy HS	O174
Alexander HS	O180
Warren HS	O182
Athens HS	O185
Marietta HS	O190
Tri-County Career	M02
Trimble HS	M04



Books Testing Locations
Upper Pool - 2010/2011 School Year

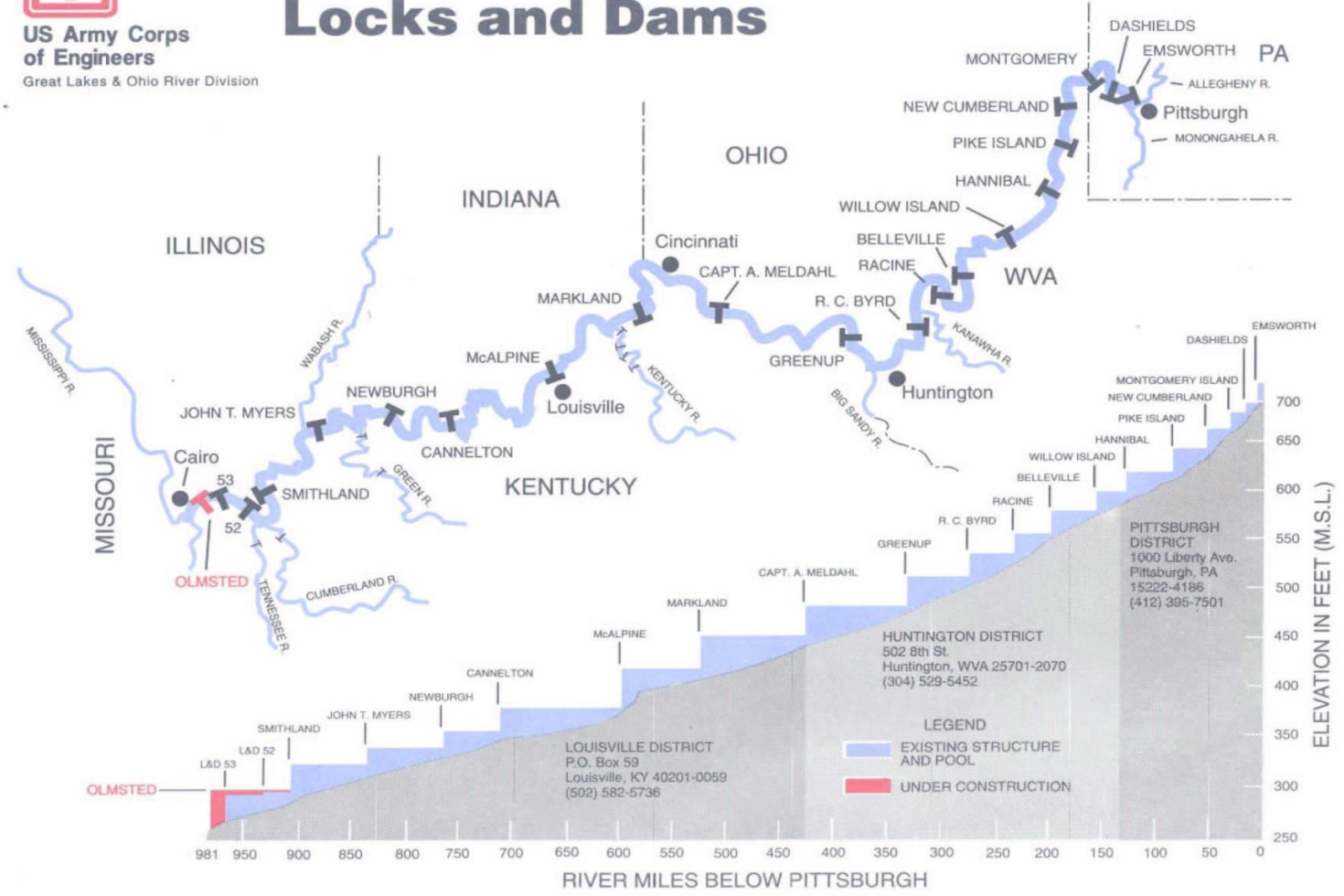


Books - Ohio River: Marietta to Gallipolis



US Army Corps of Engineers
Great Lakes & Ohio River Division

Ohio River Mainstem Locks and Dams



Station 1



Station 3



Station 2



The best student-centered learning experience in America

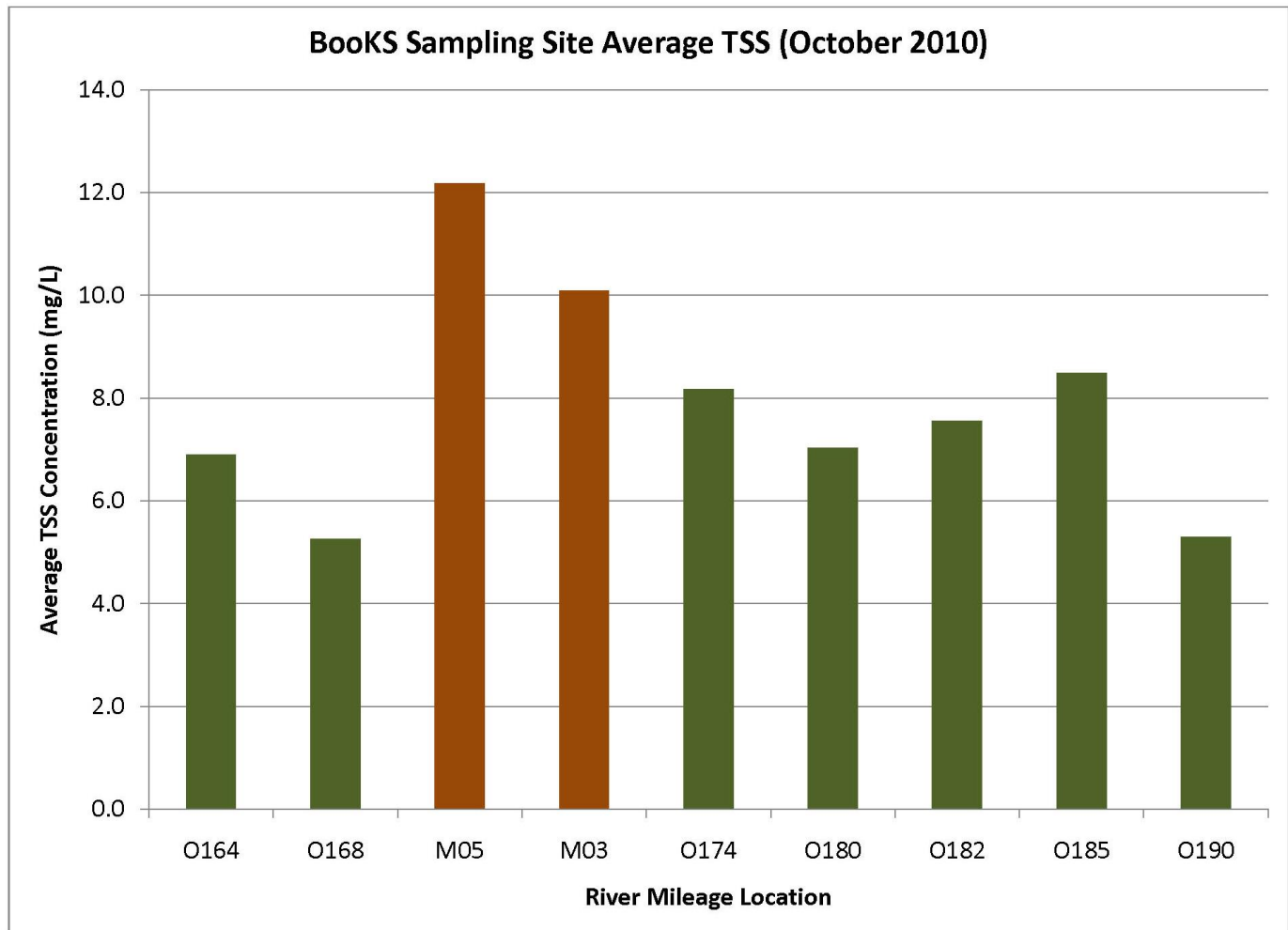


OHIO
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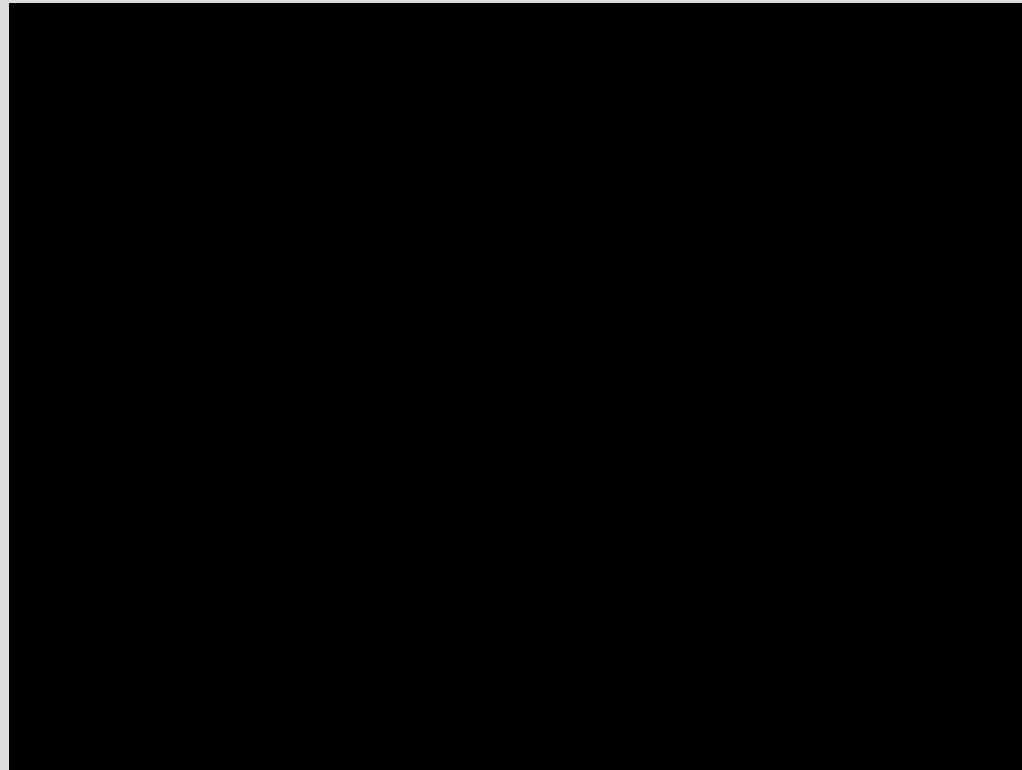
BooKS Website: <http://books.ohio.edu>



TSS (October 2010)



BooKS Video - Activities



Research vs. Education



Sustainable Model