



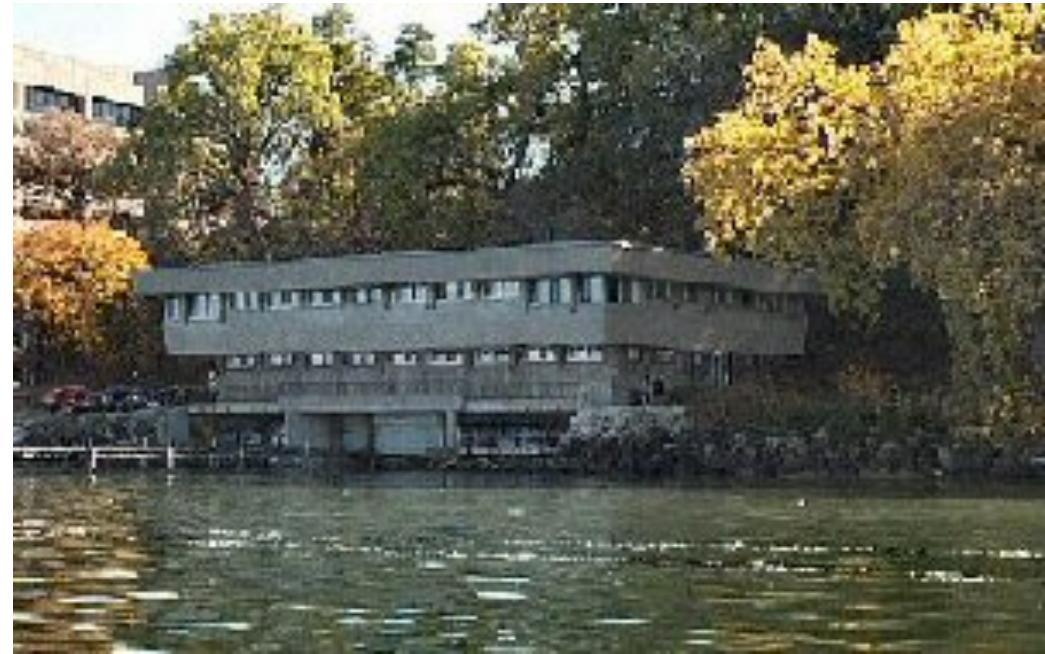
University of Wisconsin Center for Limnology



Trout Lake Station

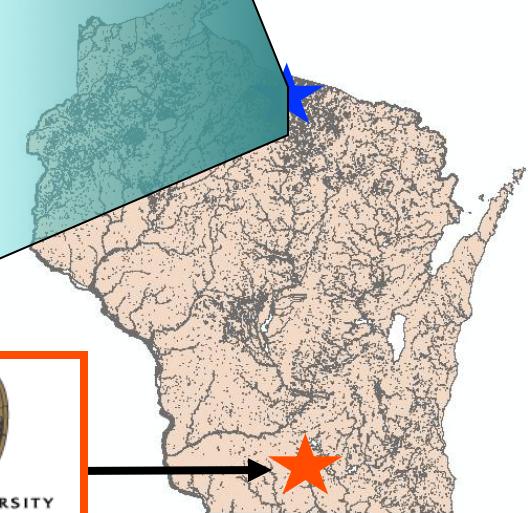
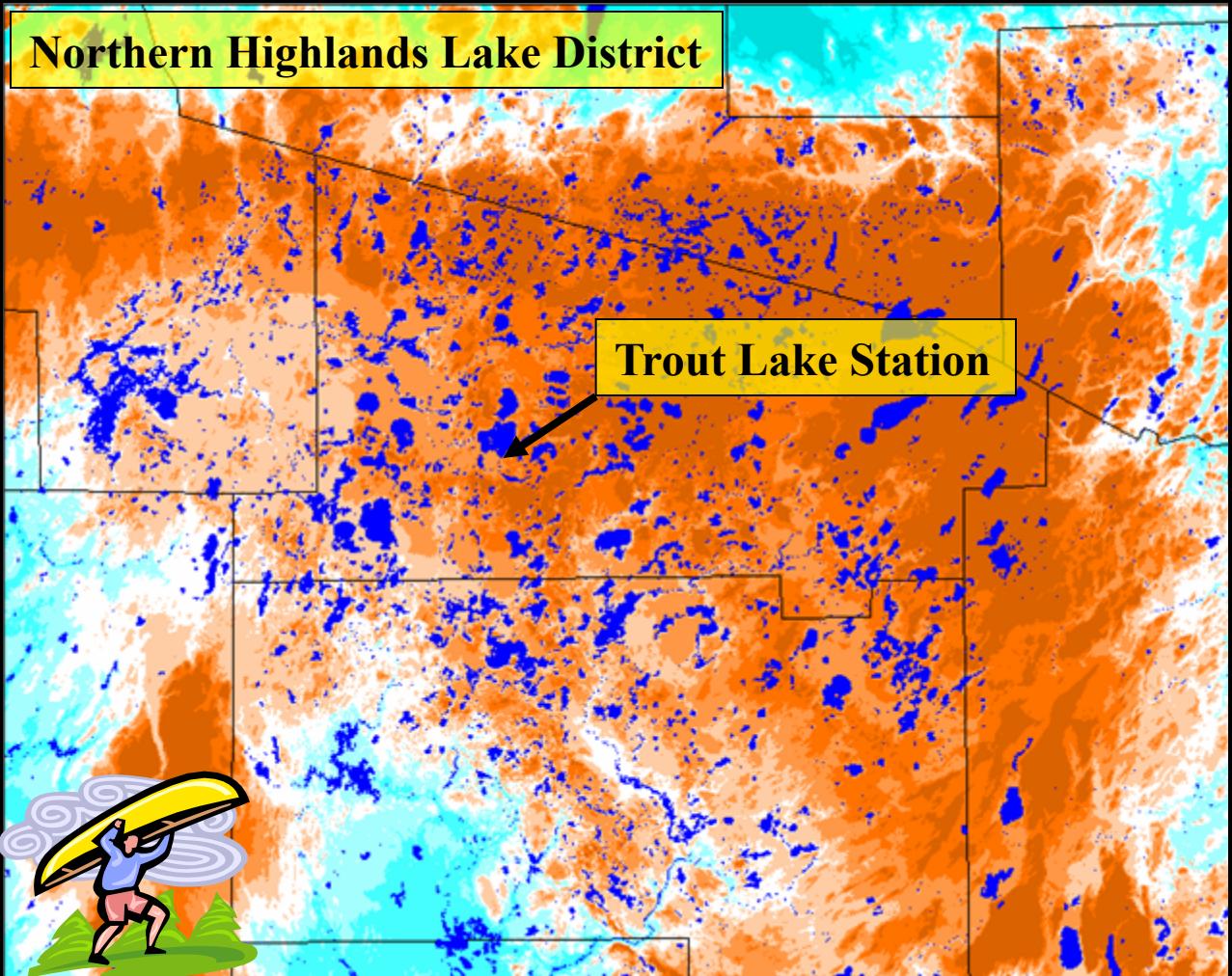
"Limnology: The study of inland waters... lakes, rivers, wetlands"

Hasler Laboratory for Limnology



Northern Highlands Lake District

Trout Lake Station





GLEON

Global Lake Ecological Observatory Network



A grass-roots network...



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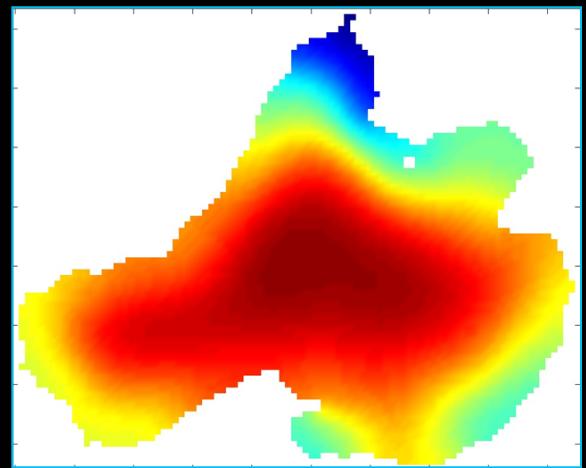
PRAGMA Expedition

*Understanding and predicting
phytoplankton communities in eutrophic
lakes*



Bloom in Beaver Dam Lake early in the summer.

Slide courtesy Jim Vennie



Model simulations to
⇒ Understand how the system works
⇒ Predict responses to changes



Organismal data

Phytoplankton
Zooplankton
...

Dimensioned data

Absorbance EEMS

Traditional data

PO₄
Chla
...

Sensor data

Meteorological Limnological

Lake Mendota

Overview



Lake Mendota is the northernmost and largest of the four lake's near Madison, Wisconsin. The lake borders Madison on the north, east and south; Middleton on the west; Shorewood Hills on the southwest; Maple Bluff on the northeast, and Westport on the northwest. The University of Wisconsin-Madison is situated along the western shore of the lake, as well as the town of Middleton which Madison is built on and the lake connected by the Yahara River. The Wisconsin State Capitol building and much of the state government is located in this narrow stretch of land. The University of Wisconsin-Madison campus is situated along the eastern shore of the lake. In 1965, Dr. James L. Cushing, Chemistry professor and a convert of the University, the university's Houghing Club operates at Memorial Union. Much of the university's social life is centered around the lake.

System attributes (unstructured data)

Algal bloom
Surface scum
Odor
C source/sink
Clear water

Image © 2010 DigitalGlobe
Image USDA Farm Service Agency

Numerical simulations

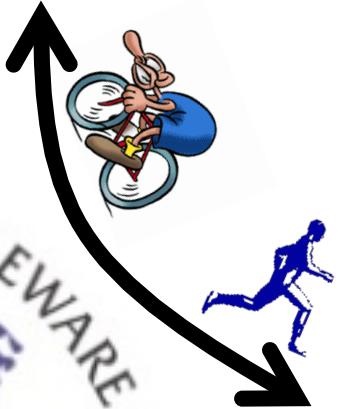
Condor

Interpretation

Answering science questions



WISCONSIN
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 **VirginiaTech**
Invent the Future



Scaling computation

Visualization

Tracking numerical experiments

Spanning networks