

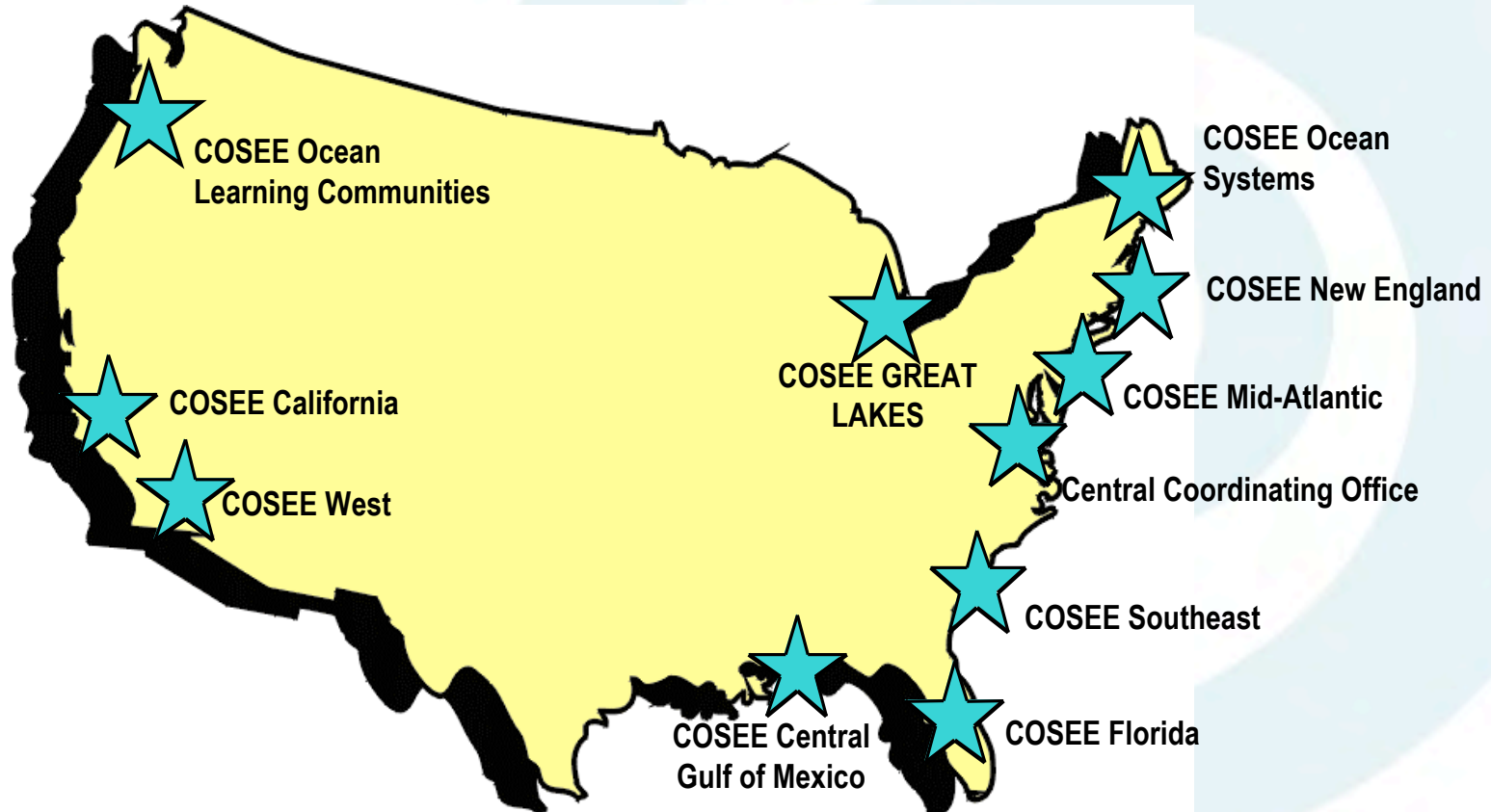


# *COSEE Great Lakes*

*Collaborative science and  
education*

# National COSEE Network

The National COSEE Network comprises 10 centers that act locally, regionally and nationally.



## Scope



- Largest COSEE nationally
- Five Great Lakes, 8 states
- More than 30 collaborators, including 5 other COSEEs
- NSF/NOAA support for 2006-2010

# COSEE Great Lakes Partners



- Cooperative Institute for Limnological and Ecosystem Research [CILER]
- Great Lakes Environmental Research Laboratory [GLERL]

- Michigan Sea Grant
- Illinois-Indiana SG
- Minnesota SG
- New York SG
- Ohio SG
- Pennsylvania SG
- Wisconsin SG



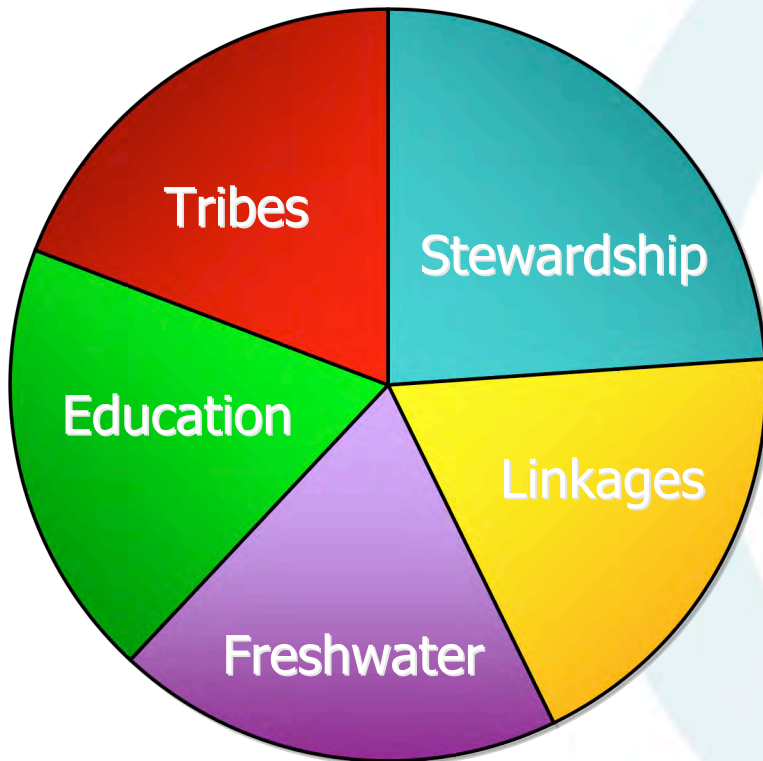
# COSEE Great Lakes Collaborators

- Bathysphere Underwater Bio Lab
- Bay Mills Community College
- Buffalo Museum of Science
- COSEEs California, Mid-Atlantic, Southeast, Northeast, West
- Chicago, Cleveland, Detroit, Duluth & Monroe Public Schools
- College of Exploration
- Duluth Schools Indian Ed Program
- USEPA-GLNPO
- GLERL
- Grand Valley State University
- Great Lakes Commission
- Great Lakes Science Center
- IAGLR
- Inland Seas Education Association
- Learn the Seas – America
- MAEOE
- Michigan Technological University
- MI United Conservation Clubs
- NSF Biocomplexity Project
- PA Regional Science Consortium
- Peggy Notebaert Museum
- Shedd Aquarium
- Thunder Bay NMS
- USDI Fish & Wildlife Service
- USDI National Park Service
- USGS Great Lakes Science Center
- Crooked Cove Records LLC

# National COSEE goals

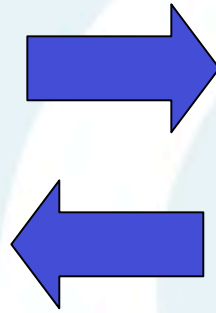
- Promote the development of **effective partnerships** between research scientists and educators;
- Disseminate effective **ocean science education programs and best practices** that build on existing resources;
- Promote a vision of ocean education as a charismatic, interdisciplinary **vehicle for fostering scientific literacy**

# COSEE Great Lakes Goals



- Inspire scientific literacy and environmental responsibility
- Link regional education and research communities
- Add freshwater component to the National COSEE Network
- Improve Great Lakes/ocean sciences education
- Involve regional Tribes in enhanced Great Lakes/ocean sciences learning

# COSEE Great Lakes Objectives



Facilitate collaboration between scientists and educators:

- enhance teacher capabilities in science
- assist scientists in education and public outreach



# COSEE Great Lakes Objectives

Integrate Great Lakes and ocean sciences in curricula

*Greatest of  
the Great  
Lakes  
2006*



# COSEE Great Lakes Objectives

Facilitate direct student connections to Great Lakes and ocean sciences

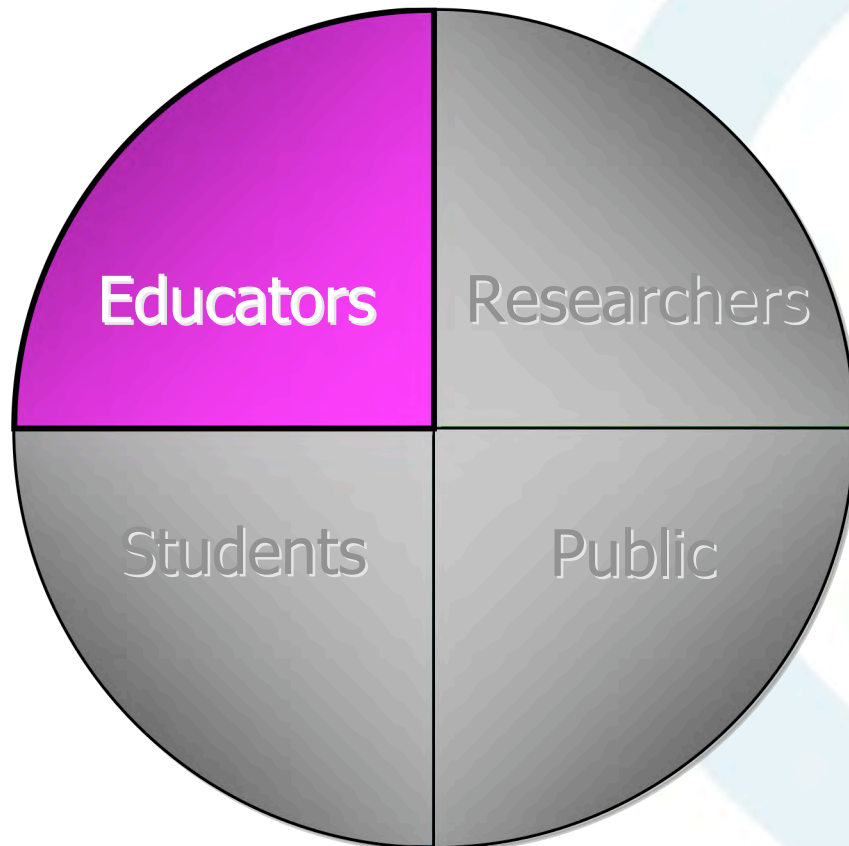


# COSEE Great Lakes Objectives



Increase access to Great Lakes & ocean sciences for the public & underserved groups

# COSEE Activities by Group



## Educators

- Lake Explorations [1 wk]
- R/V *Lake Guardian* [1 wk]
- Marine Immersion [partner programs each year]
- Teachable Moments [1/2 -1 day programs annually, each lake]
- Curriculum Enhancement
- COSEE Summit 2010
  - Sharing of lessons learned
  - Planning for next steps

# Primary events for educators in 2006



- *R/V Lake Guardian* workshop June 18-24, Lake Erie
- Lake Superior Exploration July 29-Aug. 4 Duluth
- Marine Immersion partner events
- Teachable Moments



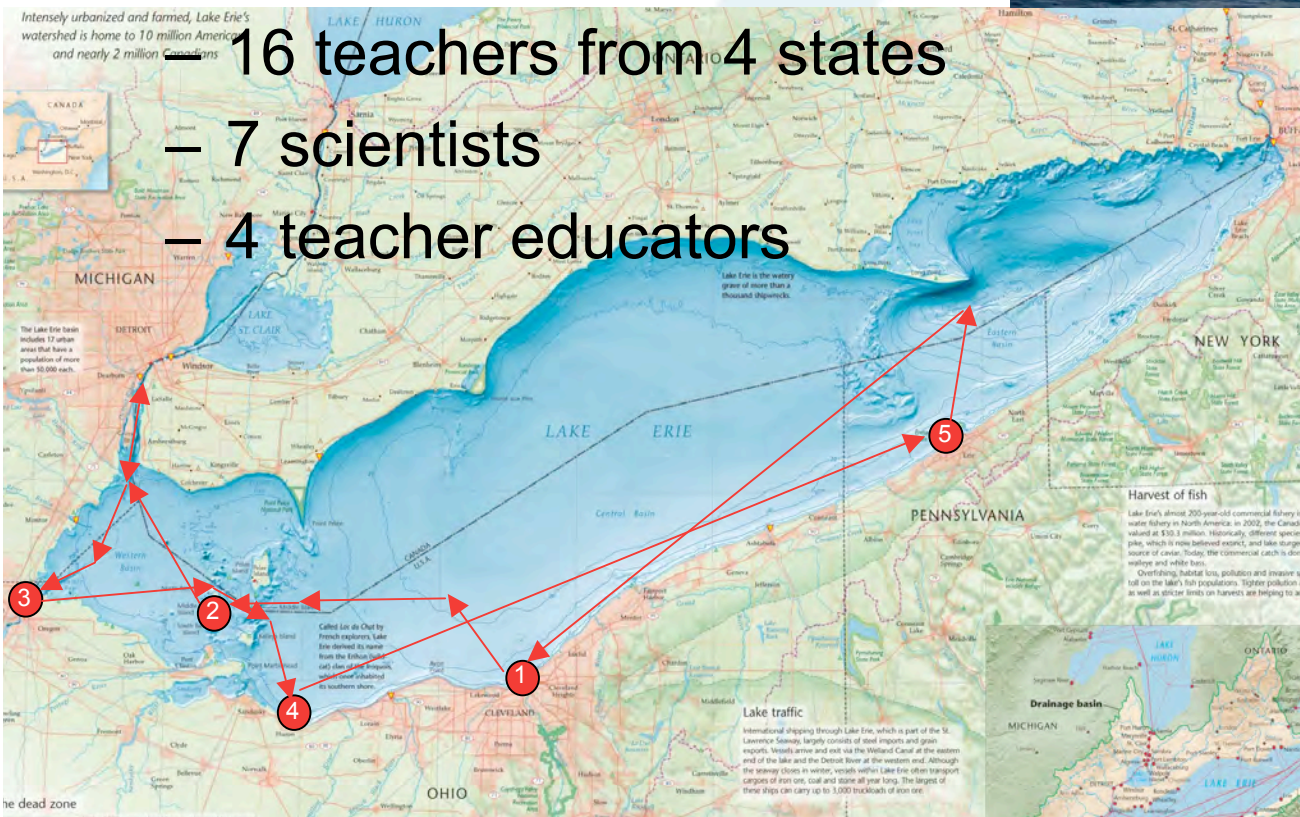
## In a Lake Exploration workshop...

- Advance readings from journals [both science and education]
- Discussion BEFORE presentation
- Scientists participate in activities
- Informal conversations
- Follow-up for 3 months -- email, visits, curriculum assistance, etc

[In Guardian workshop: design investigation, collect/analyze data, learn-as-you-go]

# Our first summer successes:

Maiden voyage of the  
Shipboard and Shoreline  
Science workshop



Next voyage in  
2008, Lake Ontario

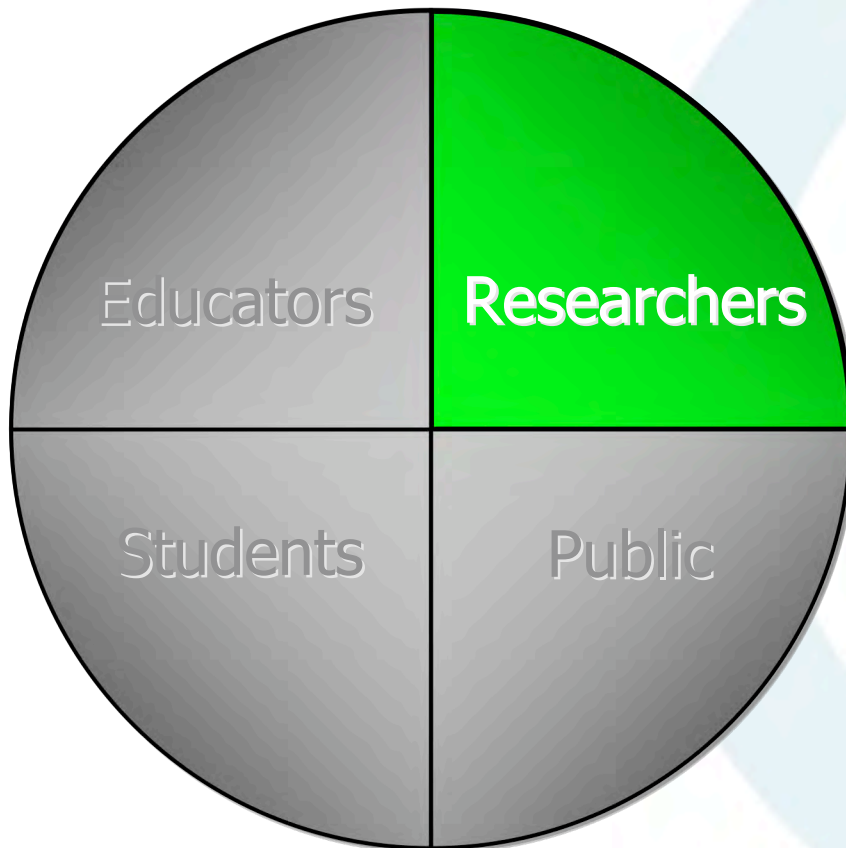
# Lake Superior Exploration

- 17 teachers from 5 states
- 10 scientists
- 5 teacher educators



Next summer: Lake Huron!

# COSEE Activities by Group



## Research Scientists



- Workshops & *Guardian*
- Educator House-calls '06 & '08
  - 5 teachers visit science facility for a day [3 events]
  - Sharing of science process and educator needs
  - Teachers assist with outreach ideas for science in schools
- School for Scientists
  - IAGLR workshop '07 & '09
  - Answers to education Qs
  - Ideas for BROADER IMPACT
- COSEE Summit 2010



# LIMNO-links

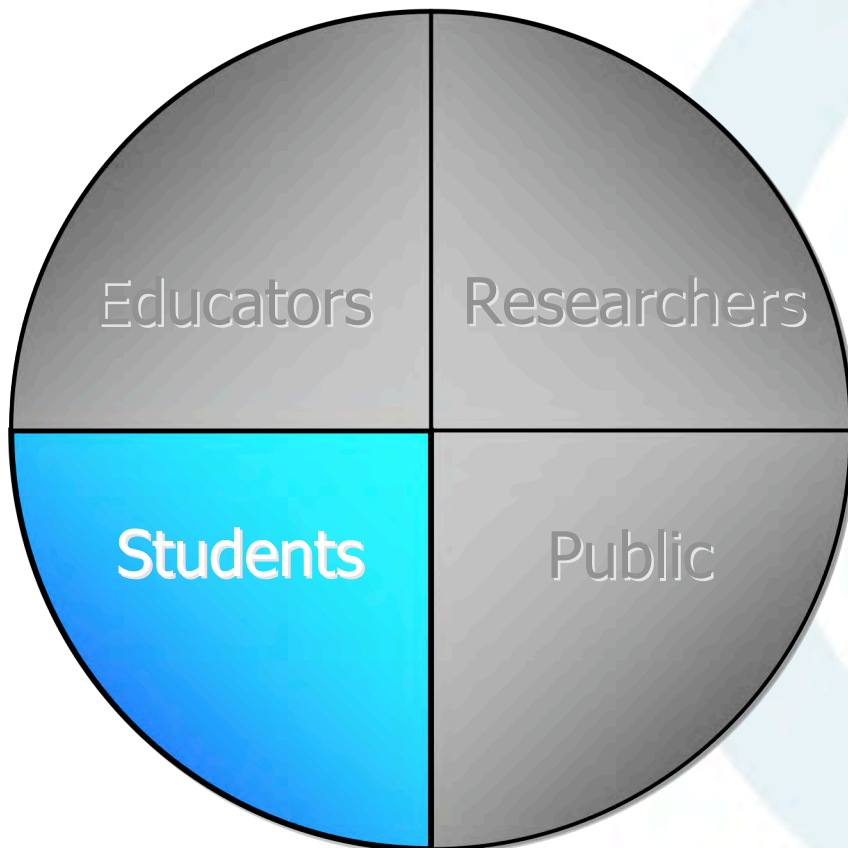
Scientists engaged with

- Educators
- Students
- Public

Scientists alert to

- Opportunities
- Culture of education
- How people learn
- Standards for science

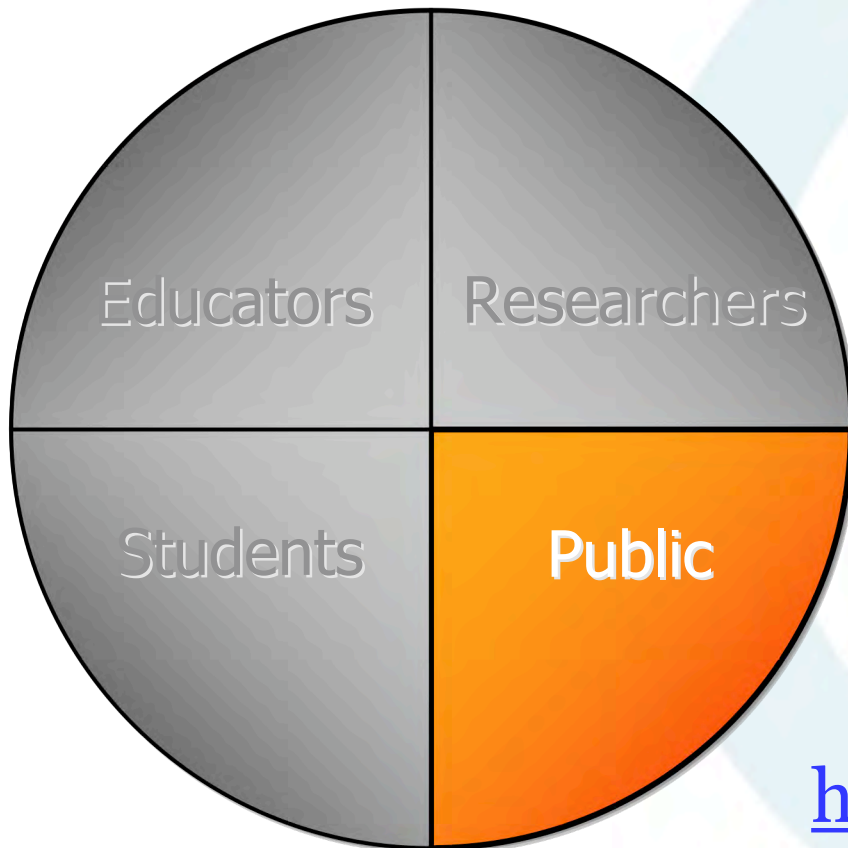
# COSEE Activities by Group



## Students

- O'LAKERS  
(Ocean/Lake-Aware Kids Engaged in Relevant Science) All states, all years
- Student Summits
  - Buffalo '06 & '08
  - Upper lakes '07, '09
- Great Lakes Ecology Course on line
- Great Lakes/ocean Sciences Careers

# COSEE Activities by Group

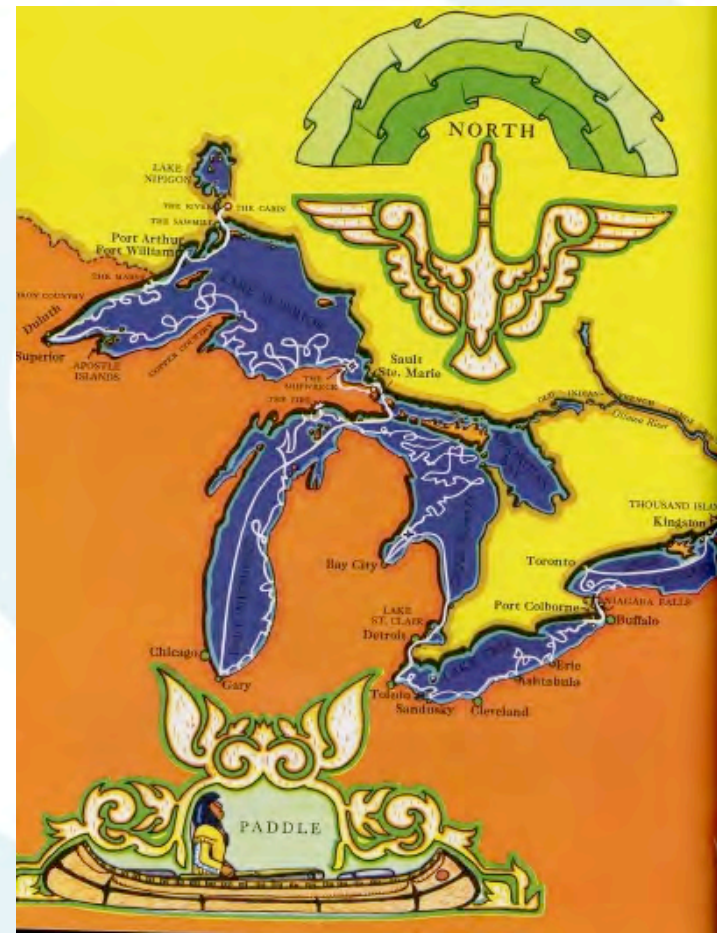
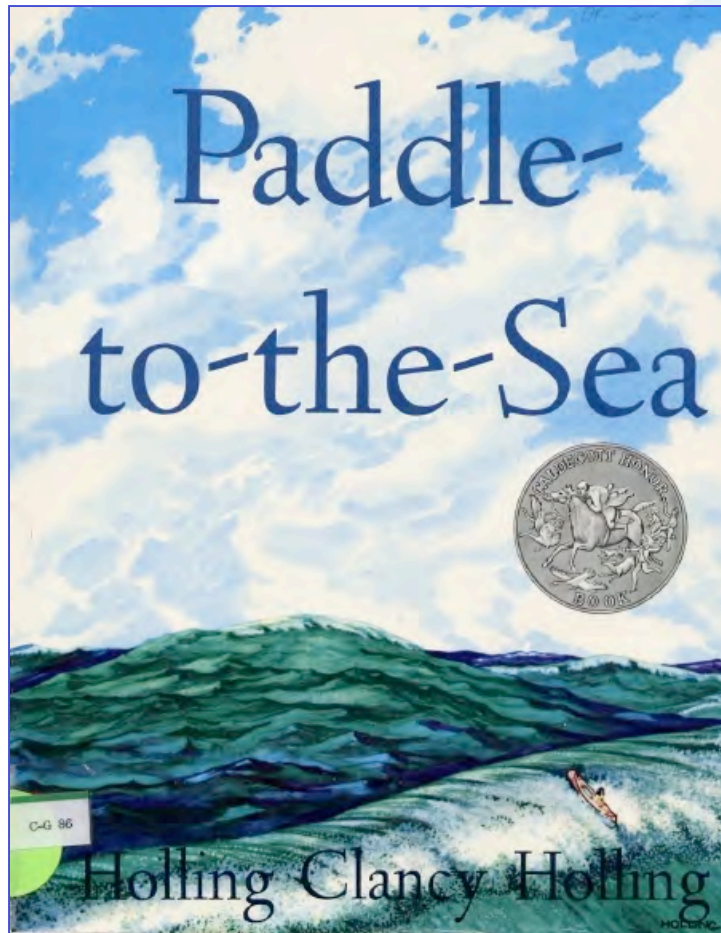


## **Public, Media, Internet**

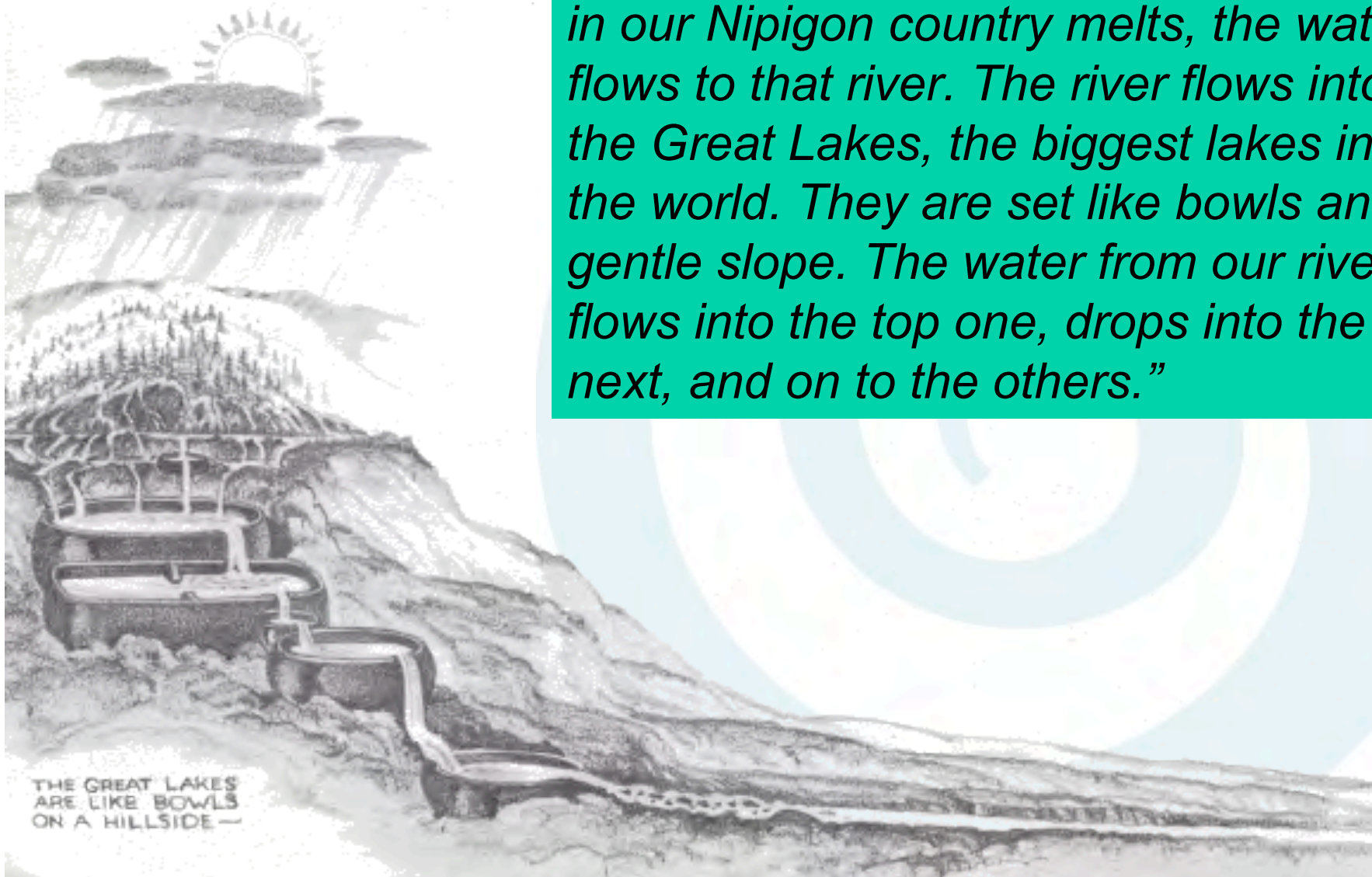
- Public Seminars
- COSEE on the Internet
- Teaching with GLOS
- College of Exploration
  - Watch for us in November!
- Mass Media

<http://coseegreatlakes.net>

# Lake-by-lake progression of activities



*“Now I will tell you something! I have learned in school that when this snow in our Nipigon country melts, the water flows to that river. The river flows into the Great Lakes, the biggest lakes in the world. They are set like bowls on a gentle slope. The water from our river flows into the top one, drops into the next, and on to the others.”*





*“The snow will melt and the water will run downhill to the river, on down to the Great Lakes, down again and on at last to the sea.*

*You will go with the water and you will have adventures that I would like to have.”*



Immediate COSEE opportunities for  
scientists and educators:

- <http://coseegreatlakes.net> events list
- Email your state's Sea Grant  
educator, or  
[director@coseegreatlakes.net](mailto:director@coseegreatlakes.net)