

Teaching with Great Lakes Data

LINKING THE CLASSROOM TO REAL WORLD SCIENCE

www.greatlakeslessons.com



Often scientific data can be too... well, scientific, to use in a classroom. *Teaching with Great Lakes Data* connects educators and students to data collected throughout the Great Lakes and presents the information in a digestible format. Greatlakeslessons.com provides Great Lakes data sets, an overview of teaching methods, and ready-to-go lessons and activities. Any of these resources may be easily incorporated into your curriculum and are multidisciplinary. All the materials on the website are free.

Teaching with Great Lakes Data enables educators to:

- Encourage students to develop higher-level thinking skills using real data.
- Explore dead zones, climate, weather, and fish habitat in the Great Lakes.
- Enhance teaching skills through guided inquiry methods.

Great Lakes Water Data Sets for Teachers

Many agencies and websites provide access to scientific data. However, it is often in a form that only a knowledgeable scientist can use. Data for this website has been:

- Compiled from buoys, satellites and other monitoring devices.
- Customized for use in the classroom with fewer data and decimal points.
- Compiled into a usable spreadsheet format with a user guide.

Guided Inquiry Method

The online lessons also include guided inquiry methods to assist 5-12th grade teachers in targeting higher-level thinking and science process skills for their students. The website provides a step-by-step explanation of guided inquiry and the tools needed to implement these methods in a classroom.

Lessons About the Great Lakes

Fully developed and ready-to-use lessons and activities make it easier to teach about dead zones, climate and weather, and fish habitat in the Great Lakes region. The lessons:

- Include background information on broad scientific concepts like water density and specific information on Great Lakes science such as seasonal turnover.
- Are complete with hands-on learning activities.
- Have been aligned to content expectations, national standards and Ocean Literacy Principles

Also see: *Fisheries Learning on the Web*, www.projectflow.us

This website is part of a research and education effort supported by Michigan Sea Grant (University of Michigan and Michigan State University), Eastern Michigan University, the National Oceanic and Atmospheric Administration (NOAA), the Great Lakes Observing System, the Center for Ocean Sciences Education Excellence-Great Lakes and the NOAA Great Lakes Environmental Research Laboratory.



Michigan Sea Grant enhances the sustainability of Michigan's coastal communities, residents, and businesses through research, outreach and education.

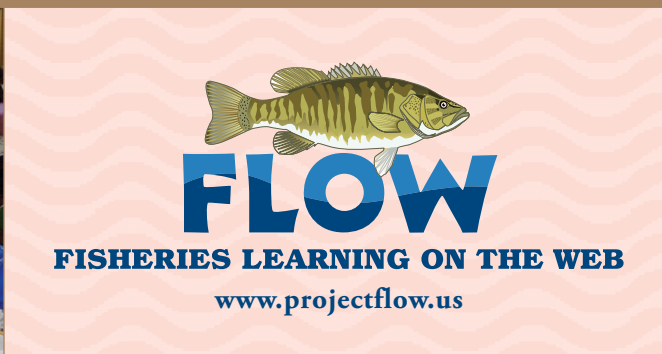
Contacts

Elizabeth LaPorte
(734) 647-0767, elzblap@umich.edu

Steve Stewart
(586) 469-7431, stew@msu.edu

Fisheries Learning On The Web

CONNECTING WITH EDUCATORS



Fisheries Learning on the Web is a comprehensive curriculum about the Great Lakes ecosystem. Lessons are geared toward educators who teach upper elementary and middle school students. Each lesson is aligned with national and state curriculum standards for science and social studies and features a hands-on classroom activity.

Lesson materials include:

- Fun and engaging downloadable materials, such as an invasive species board game, a dichotomous key and fish cards.
- Specific educational objectives, based on standards and benchmarks.
- Assessment tools, based on learning objectives.

Fisheries Learning on the Web (FLOW) focuses on the Great Lakes fisheries, food web, invasive species and water quality. Within FLOW, you will find activities that are “plug-n-play.” Each section features five lessons that introduce overall concepts, teach via activities and then follow up with guided lessons and discussion. The following units are included:

Food Web

- Introduces aquatic food chains and food webs.
- Demonstrates through classroom activities that all living organisms in an ecosystem are connected and that this structure is sensitive to change through classroom activities.
- Lessons cover non-indigenous species and why some are considered invasive.

Water

- Introduces watersheds and wetlands.
- First two activities allow students to predict, observe and explain the movement of water.
- Lessons 3 and 4 discuss freshwater and the importance of water quality.
- Final lesson asks students to make their own decisions concerning water quality, land use and the environment.

Fish

- Introduces the number and variety of Great Lakes fish.
- Students use a simple key to identify several common fish families.
- Lessons cover the importance of healthy fish habitat, the stages in a fish's life cycle and techniques for tracking and monitoring Great Lakes fish populations.
- Final lesson highlights scientific careers.

Commitment to Education

Michigan Sea Grant education specialists ensure that all environmental educational materials are tested in the classroom and address key environmental, economic and social issues, such as the importance of water quality to humans, animals and plants.

Educational materials like FLOW are designed to support educators in Michigan and throughout the country. Lesson content is based on objectives that are aligned to national standards and benchmarks and can easily be incorporated into existing science curricula. Assessment tools, including sample rubrics, are also provided.

Also see: *Teaching with Great Lakes Data*,
www.greatlakeslessons.com

FLOW is part of Michigan Sea Grant's ongoing effort to provide K-12 teachers and non-formal educators with high-quality curriculum materials and interactive educational activities. Michigan Sea Grant originally developed the curriculum with support from the Great Lakes Fishery Trust in 2005 and has provided updated lessons.

Contacts

Elizabeth LaPorte
 (734) 647-0767, elzblap@umich.edu

Steve Stewart
 (586) 469-7431, stew@msu.edu

Laura Welsh Florence
 (734) 647-9730, lwelsh@umich.edu



Michigan Sea Grant enhances the sustainability of Michigan's coastal communities, residents, and businesses through research, outreach and education.

