

GREAT LAKES FIELDSCOPE

greatlakes.fieldscope.org

Do you love data and maps? Are you a teacher trying to incorporate real and relevant data into assignments? Perhaps you're a citizen scientist with data to contribute, or you simply want to know where water goes when it rains. Welcome to FieldScope, an online, interactive mapping tool that will assist you in any of those objectives. Not only can this tool help you investigate the Great Lakes — you can also help build a richer patchwork of Great Lakes understanding by contributing your own observations and uploading data.

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OVERVIEW

Great Lakes FieldScope is an interactive, online mapping and data analysis tool developed by National Geographic Education and Michigan Sea Grant. It is free and does not require any software downloads to use it. Users can explore, share and analyze data from peers and professional scientists and are also invited to collaborate with the FieldScope community.

What is a Mapping and Data Analysis Tool?

FieldScope can be used to creatively investigate real-world matters like water quality, sediment contamination or fish spawning grounds in an online format. The rich geographic content can help teachers, students, volunteer monitors and citizen scientists get a better understanding of their connection to the Great Lakes.

For example, if you were to pour a bucket of water out in your backyard, where does that water go? Using FieldScope, you can trace the drainage path, check on water quality in the river it drains to, and then compare and contrast that information with data from nearby watersheds — and much more.

How it Works

Participants can choose from a few starter map options (with preselected data layers, observation data and descriptions) and example graph options, or start from the beginning and create new maps and graphs of their own. Users can explore data layers that show rivers and streams, watershed boundaries, wetlands, Areas of Concern, water depth, elevation and land cover.

Users have the option of registering for a Great Lakes FieldScope account; an account allows a user to share maps and graphs they have created with friends and family through Twitter and Facebook.

Building the Data Foundation

FieldScope participants can also upload their own field data — including photos, quantitative measurements, qualitative observations and field notes — as well as publish archived data. Once the information has been added to FieldScope, the data becomes part of the scientific picture of the Great Lakes and can be used in any number of ways to help provide a more thorough understanding of our natural resources.

FieldScope will continue to evolve as more data is added through data entered by different user groups as well as through additional data layers created by Michigan Sea Grant and GIS specialists.

RESOURCES

Guiding Light

Using FieldScope the first few times can be overwhelming. We've created the *Great Lakes FieldScope User Guide*, available as a free PDF download. The Guide provides an introduction, basic exercises and mapping activities to help you become familiar with the tool.

www.miseagrant.umich.edu/education/great-lakes-fieldscope

Take it with You

FieldScope is also available in app form. Great for collecting and adding data on-the-go, the app is available for iOS and Android platforms. Search for "FieldScope" in your app store.

Learning a Lesson

Looking for classroom lessons to help you explore FieldScope or that make use of real data? Check out Teaching Great Lakes Science.

greatlakeslessons.com

Questions or Comments?

Contact Michigan Sea Grant at msgpubs@umich.edu.



TEACHING GREAT LAKES SCIENCE

Lessons & Data Sets

Bring the Great Lakes to your class with Teaching Great Lakes Science!

This online resource offers ready-to-use lessons, activities and data sets focused on Great Lakes issues, drawn from real-life data.

www.GreatLakesLessons.com

OVERVIEW

The materials found at Teaching Great Lakes Science are ready-to-use or can be easily adapted for different ages and learning abilities. The resources are multi-disciplinary, based on science, technology, engineering and math (STEM) themes, and can be incorporated into formal and informal educational settings.

How it Works

Lessons and activities are organized into modules including physical, life, earth and social sciences. The lessons found in each module are related to the same core concepts; however, each lesson can stand on its own and be explored in any order. Educators are encouraged to use the materials whichever way works best for their students.

Lessons include a summary, learning objectives, and a background that provides a detailed overview of the subject. Linked activities help demonstrate and apply the concepts presented in the lessons.

Topics include:

- Climate and weather
- Lake effect snow and ice cover
- Physical properties of water
- Food webs and chain
- Native and invasive species
- Habitat restoration and human impacts
- Water quality and quantity

Real Data

Data sets are comprised of real data that has been collected throughout the Great Lakes. The sets contain background information, including suggestions on how to use the data as a launch point to design your own data-centered projects and analyses. The data sets can also be used alongside the lessons and activities. Data sets include downloads such as spreadsheets, general questions to investigate, images, charts and graphics and helpful links.

Teacher Tested – Teacher Approved

Education specialists have vetted each of the lessons, activities, data sets and teacher resources in the classroom. When new lessons and activities are developed, teachers test the new materials in formal and informal settings, providing feedback used to shape the content before it is widely available. Each lesson has also been aligned to the updated Next Generation Science Standards (NGSS).

A special section called Teacher Tools contains a glossary of key terms, tip sheets and resources focused on teaching methods using guided inquiry and how to create charts and graphs.

RESOURCES

Make it Work for You

Explore Teaching Great Lakes Science in one of many ways. We've broken the content into modules based on broad science principals each addresses. The lessons are also available by topic and or you can browse through all of the lessons and data sets by choosing the corresponding title in the drop-down menu.

Make Your Own Data

Several lessons and activities encourage teachers to get outside with their students. Great Lakes FieldScope is a great way to record data, and is also a great way to explore close-to-home data when a fieldtrip is not in the forecast.

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