Fish Finders - Lesson 1: Standards and Assessment

State of Michigan - Grade Level Content Expectations (5th-7th grade)

Discipline 1: Science processes
Inquiry, analysis and communications (IA)
- S.IA.05-07.11 - Analyze information from data tables and graphs to answer scientific questions

Discipline 3: Life science
Ecosystems (EC)
L.EC.M.1 Interactions of organisms
- L.EC.06.11 - List examples of populations, communities and ecosystems in the Great Lakes region
L.EC.M.3 Biotic and abiotic factors
- L.EC.06.32 - Identify the factors in an ecosystem that influence changes in population size

National Science Education Standards (NSES) - Middle School

Life science (C):
- All organisms must be able to obtain and use resources, grow, reproduce and maintain stable internal conditions while living in a constantly changing external environment
- The number of organisms an ecosystem can support depends on the resources available and abiotic factors, such as quantity of light and water, range of temperatures and soil composition

Science in personal and social perspectives (F):
- Technology influences society through its products and processes

Great Lakes Literacy Principles – K-12

- 5f – Great Lakes habitats are defined by environmental factors. As a result of interactions involving abiotic factors, such as temperature, clarity, depth, oxygen, pH, light, nutrients, pressure, substrate type and circulation, life in the Great Lakes is not evenly distributed temporally or spatially. Abiotic factors within the Great Lakes can change daily, seasonally or annually because of natural and human influences.

- 7b – Understanding the Great Lakes is more than a matter of curiosity. Exploration, inquiry and monitoring promote better understanding and protection of Great Lakes ecosystems, resources and processes.
- 7d – New technologies and methods of observation are expanding our ability to explore the Great Lakes. Fresh water scientists rely on such tools to monitor conditions in the Great Lakes and provide information to policy makers and leaders in coastal communities.

Standards Sources

- State of Michigan = Michigan department of education - Grade level content expectations (GLCEs)
- NSES = National science education standards
- Great Lakes Literacy Principles, COSEE Great Lakes, 2010. Great Lakes Literacy: Essential principles and fundamental concepts for Great Lakes learning [brochure]. Columbus, OH: Ohio Sea Grant OHSU-B-090. Available from www.coseegreatlakes.net.

Assessment

This assessment chart was designed for teachers to create their own assessment. In creating assessments, the value should depend on the learning level of the task. Levels are coded as Low (knowledge, comprehension), Medium (application, analysis), High (synthesis, evaluation).

Learning Objective	Student Performance
List examples of populations, communities and ecosystems living in the Great Lakes	Describe fish living in the Great Lakes (Low)
Identify the factors in an ecosystem that influence changes in population size	Explain how nonliving components of the Great Lakes influence the distribution of aquatic organisms (Medium)
Analyze information from data tables and graphs to answer scientific questions	Use weather and surface temperature data to predict fish locations (High)