

# Aquatic Standards

1. Identify assisting agencies and laws that govern Indiana waters and develop a working understanding of the programs which benefit our water resources.

HS-ENV6-1. \* Investigate to evaluate the effectiveness of environmental policies and/or organizations (Clean Water Act, Clean Air Act, Endangered Species Act, Species Survival Plan, Resource Conservation and Recovery Act, Department of Energy, and the World Health Organization)

HS-ENV6-2. \* Construct an argument to explain that environmental policies/decisions have negative and positive impacts on people, societies, and the environment

NR-3.1 Identify the history and specific purpose of agencies (e.g. SWCD, NRCS, USDA, FSA, etc.) and laws associated with natural resources systems on local, state, and national levels (e.g., water regulations, game laws, historic preservation laws, environmental policy, etc.)

NR-3.2 Evaluate the impact and effectiveness of agencies associated with natural resources Systems

2. Define a watershed and the interaction of its components.

NR-2.3 Identify aquatic systems (e.g., wetlands, watersheds, riparian zones, etc.) and evaluate their role in ecosystem function

PSS-12.4 Describe properties of watersheds and identify the boundaries of local watersheds

3. Define and understand the difference between non-point source and point source water pollution, as well as types of water pollution (organic, inorganic, thermal, toxic, etc.) and their impacts.

HS-ENV1-2. \* Use a computational representation to illustrate that humans are part of Earth's ecosystems and how human activities can, deliberately or inadvertently, alter ecosystems

HS-ENV4-2. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity

4. Be able to conduct water tests and interpret data for assessing water quality ie: dissolved oxygen, BOD5, turbidity, nitrate/nitrite etc.

HS-ENV1-5. \* Evaluate, measure, and communicate biological, chemical, and physical (abiotic and biotic) factors within an ecosystem

5. Identify aquatic organisms, be able to classify them by pollution tolerance groups, and determine their indication of aquatic health.

HS-ENV1-5. \* Evaluate, measure, and communicate biological, chemical, and physical (abiotic and biotic) factors within an ecosystem

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms

IAFNR-6.2 Classify, evaluate, select, and manage animals based on anatomical and physiological characteristics

NR-1.1 Analyze the interdependence of organisms within an ecosystem (e.g., food webs, niches, impact of keystone species, etc.) and assess the dependence of organisms on non-living components (climate, geography, energy flow, nutrient cycling, etc.)

NR-1.2 Evaluate biodiversity in ecosystems and devise strategies to enhance the function of an ecosystem and the availability of natural resources by increasing the level of biodiversity

NR-1.3 Identify different types of biotic (e.g., plants, animals, etc.) and abiotic (e.g. minerals, soil, wind, solar, water, air, etc.) natural resources to protect, conserve, manage, and understand their role in a healthy ecosystem

NR-1.4 Identify invasive species and understand their impact on the environment

HS-LS2-4. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

6. Understand the unique characteristics of freshwater resources (lakes and ponds, rivers and streams, reservoirs, wetlands, and groundwater).

HS-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

HS-ESS2-2. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.

NR-2.3 Identify aquatic systems (e.g., wetlands, watersheds, riparian zones, etc.) and evaluate their role in ecosystem function

NR-2.4 Analyze how ground and surface water quality and quantity affect ecosystem function

7. Understand the basic concepts of hydrology and the water cycle.

HS-ESS2-2. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.

HS-ESS2-5. Plan and investigate of the properties of water and its effects on Earth

NR-2.3 Identify aquatic systems (e.g., wetlands, watersheds, riparian zones, etc.) and evaluate their role in ecosystem function

NR-2.4 Analyze how ground and surface water quality and quantity affect ecosystem Function materials and surface processes.

HS-LS2-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.

8. Be familiar with the distribution of the Earth's water and understand water's changing states and processes of the water cycle.

HS-ESS2-5. Plan and investigate of the properties of water and its effects on Earth materials and surface processes.

9. Be familiar with citizens' simple actions that can be implemented to prevent nonpoint source pollution.

HS-ENV1-2.\* Use a computational representation to illustrate that humans are part of Earth's ecosystems and how human activities can, deliberately or inadvertently, alter ecosystems

HS-ENV4-2. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity

10. Be able to identify and understand the interaction of segments of a community where water pollution can occur.

HS-ENV1-2.\* Use a computational representation to illustrate that humans are part of Earth's ecosystems and how human activities can, deliberately or inadvertently, alter ecosystems

HS-ENV4-2. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity

HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.