

# A WATERSHED APPROACH

to environmental education

## WATER QUALITY MONITORING

- *Analyze Water Quality*
- *Identify Macroinvertebrates*
- *Compare Watershed-wide Data*



## WATERSHED MAPPING AND LAND USE ASSESSMENT

- *Use ArcGIS to Collect, Map, Analyze and Share Data.*
- *Promote Civic Responsibility*

## AQUATIC RESOURCE MANAGEMENT

- *Conduct a Habitat Assessment*
- *Observe Adaptive Strategies*
- *Study Age, Growth and Development Relationships*



For more information and to sign up, please contact  
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# WHAT IS THE WATERSHED EDUCATION PROGRAM (WEP)?

WEP is a three phase Program. Each phase of the program can be used as a stand-alone unit in the classroom. Whenever possible, it is highly recommended to implement all three phases to get the most out of the WEP program.

## Phase I

Students visit their local river or stream to collect water samples, describe the site characteristics, and collect macro-invertebrates. Students analyze the water quality results and identify the invertebrates to the level of order. Using these parameters, they calculate a site index to define the level of water quality in their river.

## Phase II

Students are given an opportunity to explore their watershed through the use of Geographic Information Systems or GIS. This mapping method allows them to visually display many types of data, including location of point and non-point source pollution, groundwater hazard sites, wetlands, aquifers and land use. Students will collect water quality and fisheries data and then use ArcGIS to map, analyze and share data with other schools within and between watersheds. These maps can facilitate discussion about how human activities may impact the watershed and therefore the river.

## Phase III

Students survey the aquatic resources at the site. Staff from the New Hampshire Fish and Game Department will work with students to demonstrate modern fish sampling techniques, perform a habitat assessment, and collect, identify and enumerate native fish. Some fish may be kept in a tank in the classroom for behavioral studies and observation. Salmonid eggs may also be provided to be raised in the classroom and released in an appropriate river. The students will use all of the information they have collected to identify possible management strategies and community projects to maintain and improve the water quality in their watershed and in their river.

## What grade level does this program target?

The program is designed for middle or high school science programs. With the approval of the new science curriculum frameworks, more emphasis will be placed on the environment. This program specifically includes ecological concepts, watersheds, water quality, and skills necessary to investigate environmental issues. The Watershed Education Program addresses the new frameworks very well, offering students a more concrete understanding of how “cause and effect” relationships can occur in a watershed.

## How does this program benefit my students?

Professional aquatic biologists and educators bring real world experience into the classroom and allow students to make a difference in their own community. They also provide training, equipment, and a sense of importance to the observations and conclusions made by the students. Teachers benefit by having professional development and mentorship by professionals who provide education in ecological concepts and new technology methods for the classroom.

## What is expected of schools that participate?

The teacher must attend training sessions and remain in close contact with Fish and Game staff to carry out the program. Teachers will sign up to participate in the program, borrow equipment and accurately keep track of their time spent on the program. Teachers are expected to help students participate in citizen science projects. School administrators will need to support field investigation of the river or stream sites.

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