

RiverQuest

MN Standard
7.4.4.1.2
Life Science

Sustainable Forestry

Synopsis, Resource Links, and Vocabulary List

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Synopsis:

Forest products play an important part in our lives; wood and wood products are found in many things we use daily in our homes, schools and places of business; wood products are in our shelter, and in the items that surround us. Wood is the one truly sustainable resource because forests are able to regenerate themselves within our lifetime. Besides the resource of wood, forests also provide numerous other benefits; they are places of beauty and recreation, they are the systems that filter our water and provide habitat for wildlife.

Public land managers, private forest owners, forest products companies and environmental groups have come together to support Forest Management Certification such as Sustainable Forestry Initiatives (SFI) and Forestry Stewardship Council (FSC). These certification programs require Forestry Best Management Practices (BMPs). BMPs are a set of guidelines that prevent or minimize the amount of pollution generated during forestry operations. BMPs take into account many aspects of maintaining healthy forests including: forest road construction and management, timber harvesting, site preparation, wetland forest management, and streamside management practices.

During forest harvest operations near streams, special precautions are taken to protect the waterways. BMPs include installing small bridges or culverts to minimize erosion of stream banks or bottoms, leaving trees at the water's edge to shade the stream and stabilize the stream banks to reduce erosion, and minimizing the amount of tree waste material (bark and sawdust) that goes into the stream.

Large amounts of rotting plant material or silt in water causes water to be turbid. The dark colored particles in turbid water absorb energy from sunlight, causing turbid water to warm up. This decreases the amount of dissolved oxygen the water can hold.

Soil erosion

Soil erosion is important to the health of aquatic ecosystems. Soil quality, structure, stability and texture can be affected by the loss of soil. The breakdown of aggregates and the removal of

smaller particles or entire layers of soil or organic matter can weaken the structure and even change the texture. Textural changes can in turn affect the water-holding capacity of the soil, making it more susceptible to extreme conditions such as drought.

Resource Links:

World Water Monitoring Challenge <http://www.monitorwater.org/>

U.S. Geological Survey Water Science School <http://water.usgs.gov/edu/dissolvedoxygen.html>

American Forest & Paper Association (AF&PA): <http://www.bugwood.org/reforest/reforest.html>

Temperate Forest foundation: <http://www.forestinfo.org/teachers>

Minnesota Department of Natural Resources:

<http://www.dnr.state.mn.us/forestry/education/index.html>

Learningscience.org

<http://learningscience.org/esc1cchangesearthsky.htmlearningscience.org>

Vocabulary List:

Sustainable Forestry- balancing today's demands for forest products with preserving forest health and diversity for tomorrow

Forestry Best Management Practices- a set of guidelines that prevent or minimize the amount of pollution generated during forestry operations

Erosion – the action of surface processes (such as water flow or wind) that remove soil, rock, or dissolved material from one location and transports it to another.