Learning Objectives

Water Stewardship in a Changing Climate: Water quality and availability are threatened by a changing climate, leading to concerns about human health, biodiversity, and economic development. The effects of climate change on our water resources need to be understood and actions implemented that minimize the risk, and maximize the benefits of change.

1. Understand how changes in climate will impact both the quantity and quality of water available to human and ecological systems.

2. Understand the science and modeling of climate change.

3. Discuss water stewardship actions that could be undertaken now in anticipation of climate change impacts on water resources.

4. Discuss mitigation opportunities for water stewardship in a changing climate.

Soils: Soil degradation continues to be a challenge for agriculture due to erosion, nutrient leaching, drought and water saturation. Changes in our water resources may exacerbate an already serious situation in some areas, leading to accelerated levels of soil degradation.

1. Discuss impacts on agriculture due to changing water regimes, including precipitation, ground water, erosion and pollution.

2. Explain the potential risks and benefits of climate change on agricultural production, both locally and globally.

Aquatics: Water resources are vital to aquatic ecosystems. Any change in the water resources will impact these systems.

1. Understand the implications of cross boundary (municipal, state, provincial and international) jurisdictional water issues.

2. Describe how changes in climate, whether part of a natural cycle or exacerbated by the greenhouse effect, will impact on water resources.

3. Discuss climate change impacts on aquatic ecosystems, plant and animal species, biodiversity and natural processes.

Forestry: Forests cover a significant portion of North America and play an important role in the global carbon cycle. The forest is an important component of the hydrological cycle and, even in disturbed landscapes, tree and ground cover in riparian zones regulate flow and maintain surface water quality.

1. Discuss impacts of changing water resources on forest ecosystems, plant species, forest pests, biodiversity, and natural processes such as forest migration and wildfire.

2. Explain potential risks and benefits of climate change on forestry production, both locally and globally.

Wildlife: Water resources have an influence on wildlife diversity, health, and behavior. Changes in the water resources due to climate change will impact wildlife.

1. Discuss impacts of climate change, as it relates to water resources, on wildlife species, habitat, biodiversity, and natural processes and behaviors such as migration, predation, and reproduction.

2. Explain potential risks and benefits of climate change on native species' range expansion/contraction, and the implications to natural systems of increased levels of invasive and exotic species.

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