NCF- ENVIROTHON MISSISSIPPI

CURRENT ENVIRONMENTAL ISSUE

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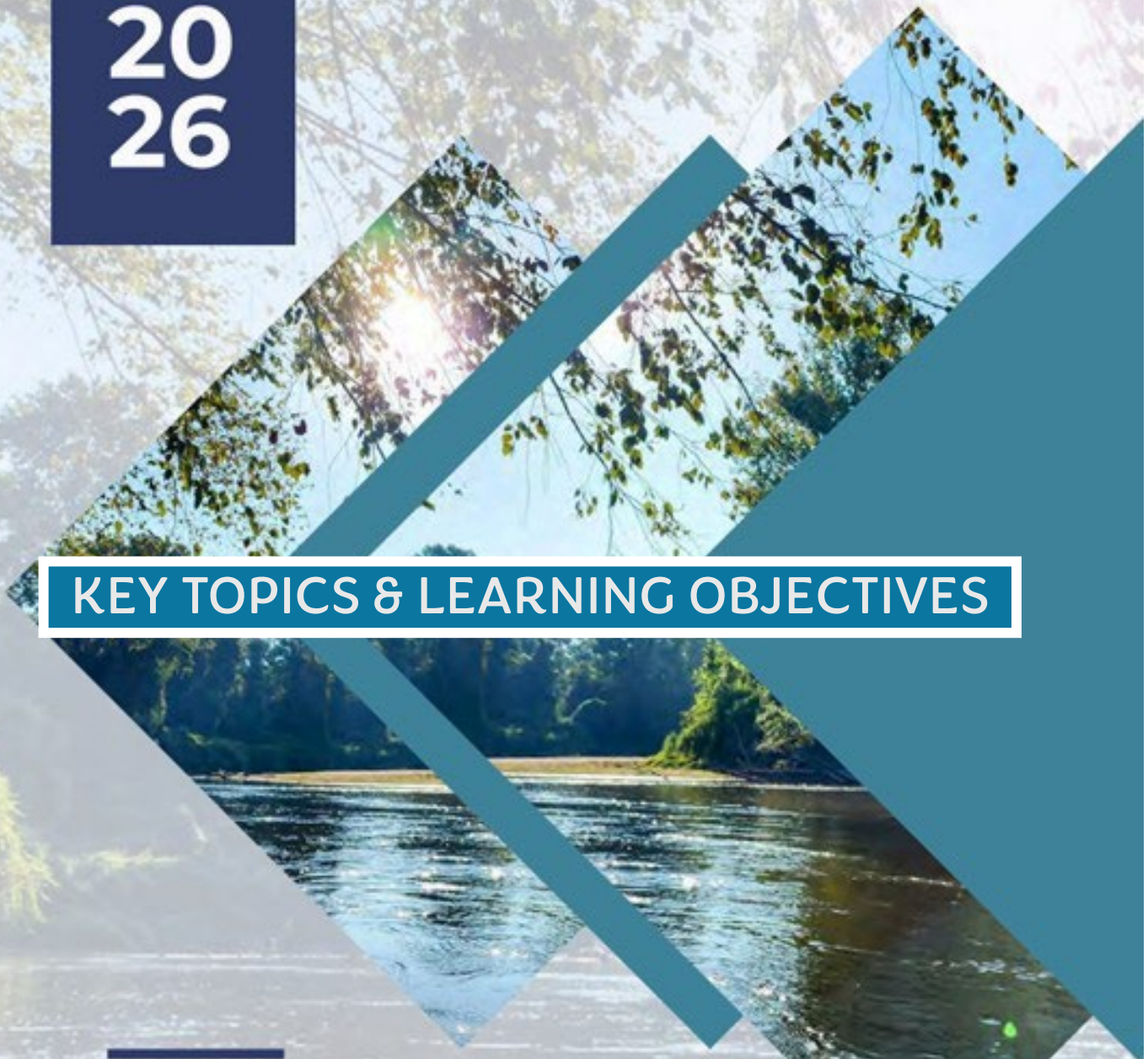

KEY TOPICS & LEARNING OBJECTIVES

NON-POINT SOURCE POLLUTION MITIGATION - IT BEGINS AT HOME!

STUDY RESOURCES

PART A

ENVIROTHON

Key Topic #1: Non-Point Source Pollution Status

Learning Objectives

1. Define non-point source (NPS) pollution and differentiate it from point source pollution using real-world examples from urban and rural settings.

2. Explain changes in watershed ecology that influence NPS pollution (Water cycle, nutrient cycles, carbon cycles, river continuum concept).

3. Identify major types, sources and pathways of NPS pollution in surface water systems, including stormwater runoff, agricultural fields, and impervious surfaces.

4. Describe the impacts of NPS pollution on water quality and designated water uses (e.g., recreation, fisheries, drinking water).

Key Topic #2: NPS in a Growing World and Your Role in It

Learning Objectives

1. Explain how population growth, urban expansion, and agricultural intensification contribute to increased non-point source pollution globally and locally.

2. Compare the effects of land use types (e.g., urban, suburban, agricultural) on runoff volume and pollutant loading.

3. Identify common products or practices in daily life that contribute to non-point source pollution through indirect pathways (e.g., fertilizers, car washing, pet waste).

4. Illustrate the concept of a personal environmental footprint as it relates to NPS pollution, using tools such as footprint calculators.

Key Topic #3: The role of the Individual/Community in NPS issues and solutions

Learning Objectives

1. Describe the role that individuals, families, and local communities can play in reducing NPS pollution through behavior change and local initiatives.

2. Identify examples of community-based solutions to NPS pollution (e.g., storm drain marking campaigns, rain garden installations, stream cleanups).

3. Compare the effectiveness of individual vs. collective actions in mitigating NPS pollution at the watershed scale.

4. Demonstrate how to design or participate in a local outreach or monitoring project that addresses NPS pollution, such as conducting a stormwater audit or organizing a pollution prevention campaign.

5. Interpret the benefits and limitations of volunteerism, citizen science, and public-private partnerships in addressing NPS issues.

Key Topic #4: Strategies to Evaluate NPS Sources, Issues, and Solutions

Learning Objectives

1. Identify tools and techniques used to assess non-point source pollution, including watershed mapping, stormwater flow tracing, and visual assessment methods.

2. Explain how monitoring data (e.g., water quality indicators such as turbidity, E. coli, nutrients) can be used to evaluate the presence and severity of NPS pollution.

3. Describe the challenges in monitoring, quantifying, and managing NPS pollution compared to point source pollution.

4. Apply simple field protocols to evaluate land use and physical features (e.g., slope, impervious cover, vegetative buffers) that influence runoff and pollutant transport.

5. Interpret basic maps, aerial imagery, or field data to locate potential sources of NPS pollution in a given watershed. 6. Recommend appropriate solutions based on identified issues in a mock or real- world NPS pollution scenario, drawing on field evidence or data interpretation.

Key Topic #5: Legislation, Regulations, and Voluntary Measures

Learning Objectives

1. Summarize major U.S. policies and programs that address non-point source pollution, including the Clean Water Act (especially Sections 303 and 319) and Total Maximum Daily Loads (TMDLs).

2. Differentiate between regulatory and voluntary approaches to controlling NPS pollution and identify examples of each.

3. Describe how federal and state agencies support local communities in managing NPS pollution through funding, education, and technical assistance.

4. Simulate a decision-making process where students must select appropriate policy or program tools to manage a fictional watershed's NPS challenges.

Steps to help control NPS pollution

• Collect litter and animal waste before they wash into storm drains.

• Apply fertilizer at the recommended rate when heavy rain isn't likely to wash it away.

• Recycle grass clippings and leaves by mulching or composting. If you can't compost, collect and dispose of yard waste according to local provisions. Do not put in storm drain.

• If you change your own oil, take the used oil to a recycling station. Check with your local service stations for such facilities. Never dump oil into a storm drain.

• Home septic tanks should be located, constructed, and installed according to regulations. Maintenance and prompt correction of problems are important.

• Direct roof runoff onto a grassed area. Roof drains should not be connected to a sanitary or storm sewer system.

• Watch for soil erosion around your home. Seed, install sod, or plant ground cover to protect the site.

• Use porous surfaces such as flagstone, gravel, stone, and interlocking pavers rather than concrete and asphalt.

• If you're concerned about the effects of runoff leaving a nearby construction site, contact the local governing body responsible for erosion and sediment control in your area, typically your county soil & water conservation office.

• Be active! Join a civic or environmental group and participate in stream cleanup activities. Give talks, man booths, join the Adopt-A-Stream Program… spread the word.

You couldn't live long without clean water. Nothing can. Do your part to protect our waters.

Learn more at https://envirothon.org/