

**SUMMARY OF KEY NON-POINT SOURCE POLLUTION OBJECTIVES  
LISTED IN THE NCF ENVIROTHON CURRENT ENVIRONMENTAL ISSUE**

**Posted on both the CA Envirothon (under STUDY MATERIALS  
AND the NCF Envirothon website study materials**

**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 NPA in a Growing World and. Your Role in It. Page 46**

**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 Page 83**

**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. Page 112**

### **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 realworld** NPS pollution scenario, drawing on field evidence or data interpretation

### **Key Topic #5: Legislation, Regulations and Voluntary Measures Page 146**

#### **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.

### **Key Topic #6" Your Best Management Practices for NPS Page 171**

1. **Identify common BMPs used to reduce NPS pollution in urban, suburban, and agricultural environments** (e.g., rain gardens, cover crops, buffer strips, pervious pavement).
2. **Explain how selected BMPs reduce pollutant loads or improve stormwater infiltration**, using diagrams or real-world examples.
3. **Compare the costs, benefits, and feasibility of different BMPs in various land use contexts** (e.g., a schoolyard vs. a farm vs. a residential street).
4. **Demonstrate how to plan or assess a BMP using a field checklist**, photo documentation, or a site sketch (e.g., rain garden layout or runoff path).
5. **Recommend appropriate BMPs for a hypothetical site based on land use, soil conditions, and observed pollution risks.**