Background:

• U.S. EPA’s most recent National Rivers and Streams Assessment identifies nutrient pollution as one of the most widespread causes of aquatic life use (ALU) impairment

• DEP is in the process of developing an objective, effects-based method for identifying ALU impairments caused by nutrients
3 Key Components of Proposed Nutrient Impact Assessment Methodology

- Macroinvertebrate Community Characteristics
- Phosphorus and Nitrogen Levels
- Diurnal (Daily) Dissolved Oxygen (DO) Fluctuations

Excessive photosynthetic activity (periphyton DO production) in a southeast Pennsylvania stream
1. Aquatic Life Use (ALU) is impaired and nutrients are a potential cause of impairment
2. Conduct initial screening of selected macroinvertebrate community metrics and stream nutrient levels
3. Based on screening results, collect continuously monitored DO data
4. Make nutrient impairment decision based on diurnal DO characteristics
Macroinvertebrate Community Aquatic Life Use (ALU) Impaired and Nutrients a Potential Cause of Impairment

**Nutrient Impairment Screening**
TP $\geq 0.10$ mg/l, or TN $\geq 4.1$ mg/l, or EPT $\leq 5$, or Becks $< 4$

- **No**
- **Yes**

Conduct Continuous Instream Monitoring of DO

30-Day Mean Diurnal DO Range $>5.0$ mg/l or Max Diurnal DO Range $>7.0$ mg/l During Critical Periods

- **No**
- **Yes**

**Nutrients Not a Cause** of ALU Impairment

**Nutrients Are a Cause** of ALU Impairment
Questions / Comments

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