

# Habitat Assessment Methodology and Intended use of Habitat Data in Illinois

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# IEPA Sampling Programs

- **Intensive Basin Survey**
- **Facility Related Stream Survey**
- **Special Surveys  
(livestock, ref. Site)**

# Why Collect Habitat Data?

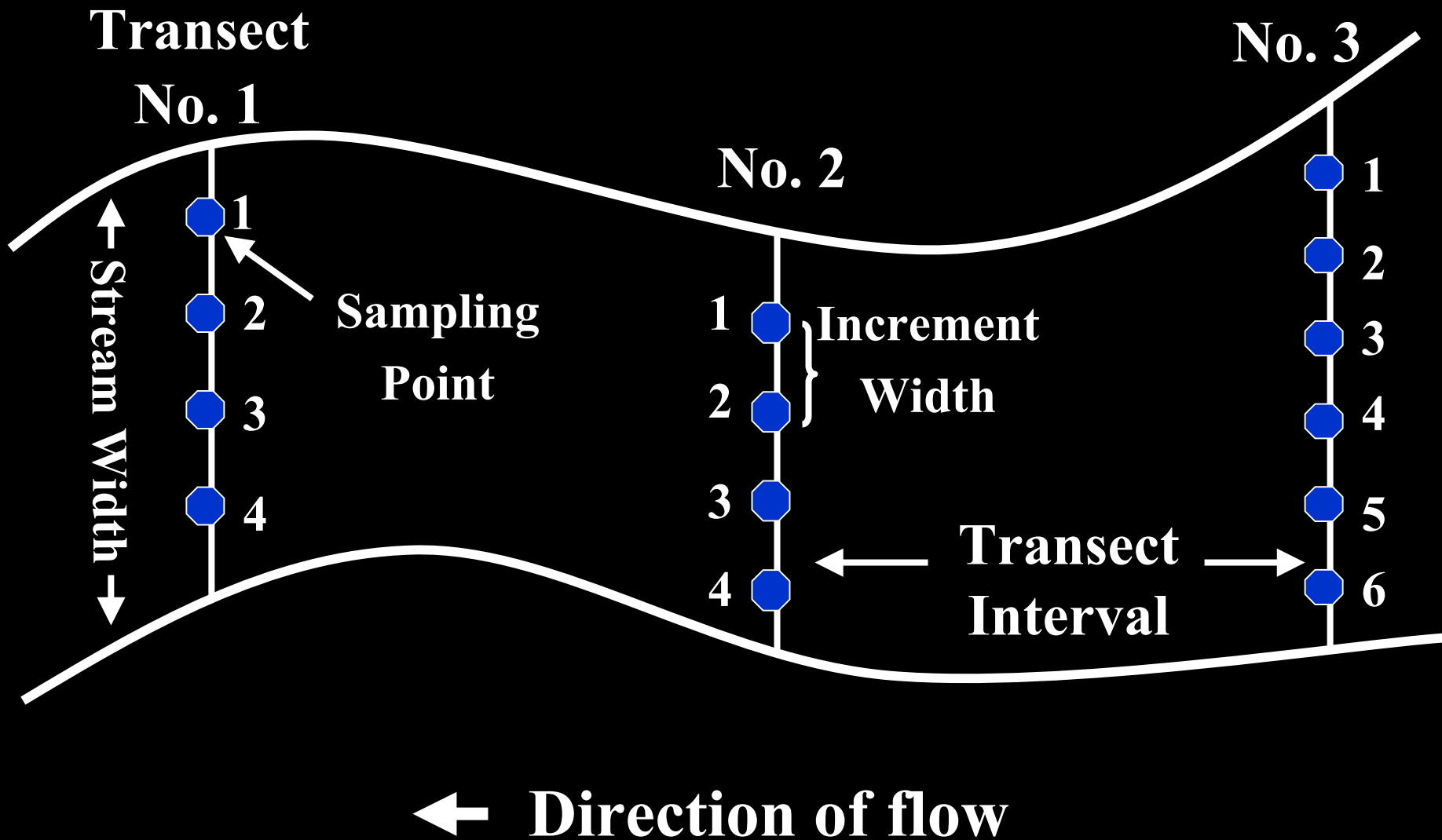
- Interpretation of fish data
  - ◆ Water quality limited
  - ◆ Habitat limited
- Document change over time
- Assure site similarity

# Methodology

- **11 Transect Approach**
  - ◆ “Quantitative” in nature
  - ◆ Mostly for wadable streams
  - ◆ Instream cover estimates
- **Stream Habitat Assessment Procedure (SHAP)**
  - ◆ Qualitative in nature
  - ◆ For wadable and nonwadable
- **Stream Discharge (cfs)**

# 11 Transect Approach

- All transects within fish sampling reach
- Transect intervals based on reach length
- Increment width based on estimated stream width.









# Transect increment spacing – based on mean stream width

Mean Stream Width (ft)	Increment Spacing
< or = 10	1
> 10 but < or = 30	2
> 30 but < or = 60	3
> 60 but < or = 100	5
> 100	10



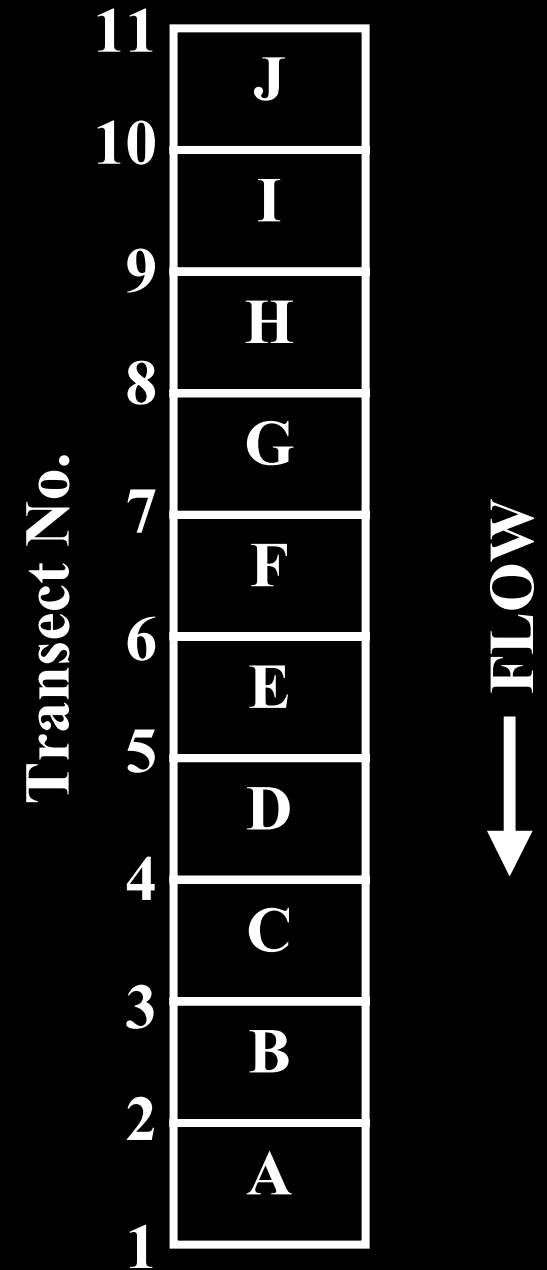
# Substrate Categories

- |            |                            |   |
|------------|----------------------------|---|
| <b>1.</b>  | <b>Silt-mud</b>            | <b>&lt;0.063 mm</b>   |
| <b>2.</b>  | <b>Sand</b>                | <b>0.063 - 2 mm</b>   |
| <b>3.</b>  | <b>Fine Gravel</b>         | <b>2 - 8 mm</b>   |
| <b>4.</b>  | <b>Med. Gravel</b>         | <b>8 - 16 mm</b>  |
| <b>5.</b>  | <b>Coarse Gravel</b>       | <b>16 - 64 mm</b>   |
| <b>6.</b>  | <b>Small Cobble</b>        | <b>64 -128 mm</b>   |
| <b>7.</b>  | <b>Large Cobble</b>        | <b>128 – 256 mm</b>   |
| <b>8.</b>  | <b>Boulder</b>             | <b>250 – 4000 mm</b>  |
| <b>9.</b>  | <b>Bedrock</b>             | <b>Solid Rock</b>   |
| <b>10.</b> | <b>Other bottom types:</b> | <b>Claypan, Plant detritus,<br/>Vegetation, Submerged<br/>Logs, Other</b> |

# Instream cover estimates

% Pool		% Run	
%Riffle		%Slack	

InSt Cover	Area (sqft)	Percent
Boulders		
Under cut bank		
Rock/Clay Ledge		
Subm. Tree roots		
Brush-debris jam		
Logs		
Aquatic Veg.		
Subm. Terrest. Veg.		
Other		



# Information Gained from 11 Transect Approach

- **Substrate percentages**
- **Mean water width and depth**
- **Instream cover estimates**
- **Channel width estimates**

# Stream Habitat Assessment Procedure (SHAP)

- **Select stream reach**
- **Wade reach to be evaluated**
- **Score habitat metrics**
  - ◆ **Excellent, Good, Fair, Poor**
  - ◆ **Assign corresponding numeric value**
- **Tally final reach score**

# Substrate and instream cover

- 1. Bottom Substrate**
- 2. Deposition**
- 3. Substrate Stability**
- 4. Instream Cover**
- 5. Pool Substrate**

# Example of SHAP Bottom substrate

Habitat Parameter	Excellent	Good	Fair	Poor
Bottom Substrate	Greater than 50%, gravel, cobble, boulders	30-50% consolidated gravel, cobble, or boulders	10-30% gravel (largely unconsolidated,	Less than 10% gravel, cobble, or boulders, predom. Sand or silt
Score	16-20	11-15	6-10	1-5



# Channel Morphology and hydrology

**6. Pool Quality**

**7. Pool Variability**

**8. Channel Alteration**

**9. Channel Sinuosity**

**10. Width/Depth Ratio**

**11. Hydrologic Diversity**

# Riparian and Bank Features

**12. Canopy**

**13. Bank Vegetative  
Protection/Stability**

**14. Immediate Land Use**

**15. Flow-Related Refugia**



# Present and Intended Use of Habitat Data

- **Biocriteria Assessments**
- **CWA 305(b) Use Attainment Assessments**
  - ◆ **% Silt/Mud**
  - ◆ **Bank Vegetative Protection/Stability**
  - ◆ **Channel Alteration**

# Present and Intended Use of Habitat Data (cont)

- **Potential Index of Biotic Integrity (PIBI)**
  - % Silt/Mud, % Claypan, % Pool, Width
- **Stream Classification (BSC)**
- **Stream Restoration Activities**
- **Index of Biotic Integrity (IBI)**
- **Assure Site Similarity**
  - SHAP difference < 25%

# Stream Habitat Percent Similarity Categories

<b>Habitat Quality Category</b>	<b>Percent Similarity</b>
<b>Excellent (Very Similar)</b>	<b>&gt; or = 90%</b>
<b>Good (Slightly Different)</b>	<b>75 – 89%</b>
<b>Fair (Moderately Different)</b>	<b>60 – 74%</b>
<b>Poor (Substantially Different)</b>	<b>&lt; or = 59%</b>



## ■ Questions