

## Macroinvertebrate Pollution-Tolerance Index

Site: "EXAMPLE"

Place a check mark next to each type of organism that is present at the site.

Group 1: Very Intolerant		Group 2: Moderately Intolerant		Group 3: Fairly Tolerant		Group 4: Very Tolerant	
Stonefly Nymph		Cranefly Larva		Black Fly Larva	✓	Aquatic Worms	✓
Alderfly Nymph		Dragonfly Nymph	✓	Midge Larva (green)	✓	Rat-tailed Maggot	
Dobsonfly Larva		Damselfly Nymph		Planaria	✓	Snails (left coiled)	
Snipe Fly Larva		Crayfish	✓	Leech		Midge Larva (red)	
Mayfly Nymph	✓	Clams / Mussels	✓				
Riffle Beetle	✓	Sowbug	✓				
Caddisfly Larva		Amphipod (Scud)					
Water Penny	✓						
Snails (right coiled)							

**A. Organism Totals** (Add the number of check marks in each group.)

Group 1: Very Intolerant	Group 2: Moderately Intolerant	Group 3: Fairly Tolerant	Group 4: Very Tolerant
# of checks = <b>3</b>	# of checks = <b>4</b>	# of checks = <b>2</b>	# of checks = <b>1</b>

**B. Organism Weighted Scores** (Multiple each group total by a weighting factor.)

Group 1: Very Intolerant	Group 2: Moderately Intolerant	Group 3: Fairly Tolerant	Group 4: Very Tolerant
# of checks X 1 = <b>3</b>	# of checks X 2 = <b>8</b>	# of checks X 3 = <b>6</b>	# of checks X 4 = <b>4</b>

**C. Total Weighted Score**

Sum the weighted scores for each group in part B. = **21**

**D. Total Number of Different Organisms**

Sum the number of organisms for each group in part A. = **10**

**E. Weighted Average of Organisms (Pollution-Tolerance Index)**

$$\frac{\text{Total Weighted Score (Part C)}}{\text{Total Number of Different Organisms (Part D)}} = \underline{\underline{\mathbf{2.1}}}$$

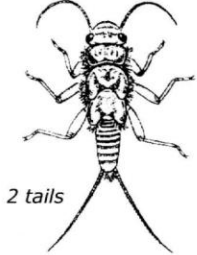
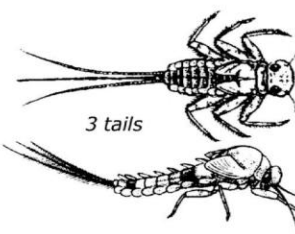
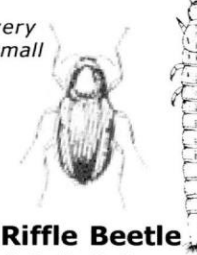





**F. Water Quality Score**

WATER QUALITY AT THIS SITE IS **GOOD**

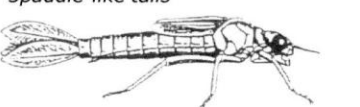
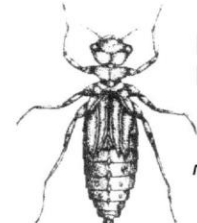
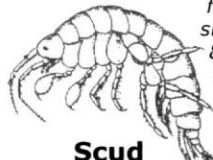



POLLUTION-TOLERANCE INDEX	WATER QUALITY
1.0 – 2.0	EXCELLENT
2.1 – 2.5	GOOD
2.6 – 3.5	FAIR
> 3.6	POOR

# Macroinvertebrate Identification Key


## GROUP 1 – Very Intolerant of Pollution

 <p>2 tails</p> <p><b>Stonefly Nymph</b></p>	 <p>3 tails</p> <p><b>Mayfly Nymph</b></p>	<p>very small</p>  <p><b>Riffle Beetle Adult &amp; Larva</b></p>	<p>makes a case from twigs, rocks, leaves</p>  <p><b>Caddisfly Larva</b></p>
 <p>large head &amp; 2 pinchers</p> <p><b>Dobsonfly Larva</b></p>	<p>top</p>  <p>bottom</p>  <p>looks like a suction cup</p> <p><b>Water Penny Larva</b></p>	<p>must be alive</p>  <p><b>Right-Handed Snail</b></p>	

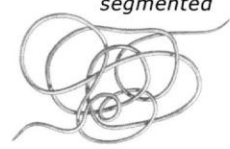



## GROUP 2 – Moderately Intolerant of Pollution

<p>3paddle-like tails</p>  <p><b>Damselfly Nymph</b></p>	 <p><b>Dragonfly Nymph</b></p> <p>no tails</p>	<p>flattened side-ways &amp; swims on side</p>  <p><b>Scud</b></p>
<p>flattened top to bottom (looks like a pill bug)</p>  <p><b>Sowbug</b></p>	<p>caterpillar-shaped, ringed</p>  <p><b>Cranefly</b></p>	<p>must be alive</p>  <p><b>Clam/Mussel</b></p>

## GROUP 3 – Fairly Tolerant of Pollution

 <p><b>Midge Larva</b></p> <p>visible head &amp; prolegs</p>	 <p><b>Planaria</b></p> <p>2 eye spots &amp; very small</p>	<p>one end is swollen</p>  <p><b>Black Fly Larva</b></p>	 <p><b>Leech</b></p> <p>flattened &amp; segmented</p>
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## GROUP 4 – Very Tolerant of Pollution

<p>segmented</p>  <p><b>Aquatic Worms</b></p>	<p>must be alive</p>  <p><b>Left-Handed Snail</b></p>	<p><b>Rat-tailed Maggot</b></p> 	<p>bright red</p>  <p><b>Blood Worm Midge Larva</b></p>
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