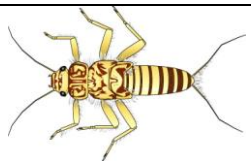
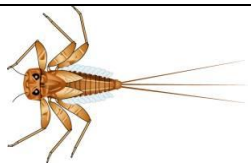
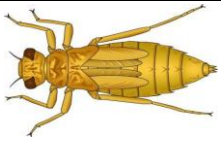
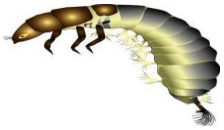
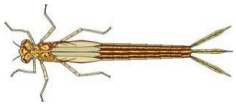
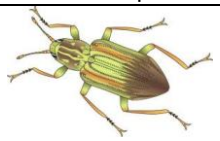
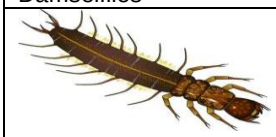
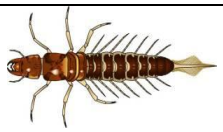
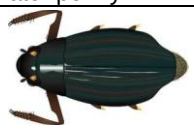
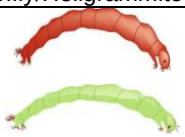
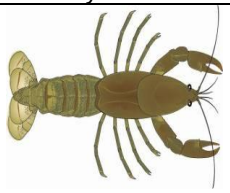
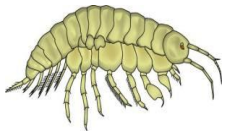
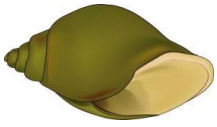
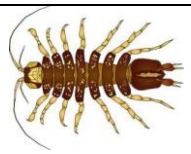
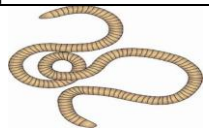
BENTHIC MACROINVERTEBRATES: Use the table below to record information about your collections. Record their abundance using these codes: (**A**) > **50**, (**C**) **5** – **50** and (**R**) < **5** and also record the number of different kinds. The # of kind's box indicates groups in which multiple kinds (FAMILIES) are possible. Note: Always record the **# OF KINDS** when necessary. Illustrations courtesy of the Cacapon Institute; Jennifer Gillies, artist

 Stoneflies	C **# OF KINDS** 3	 Mayflies	C **# OF KINDS** 4	 Caddisflies	Case-builders R **# OF KINDS** 1
 Dragonflies	C **# OF KINDS** 1	 Common netspinner	C	 Caddisflies	Net-spinners C / Free-living **# OF KINDS** 1
 Damselflies	**# OF KINDS**	 Riffle beetle	R	 Water penny	C
 Fishfly/Hellgrammite	C	 Alderfly		 Other Beetles/Bugs	Other beetles / True bugs **# OF KINDS**
 Midges	C	 Black fly		 Crane fly	
 Watersnipe fly	C	 Other True flies	**# OF KINDS**	 Crayfish	A
 Clams	**# OF KINDS**	 Mussel		 Scud/Sideswimmer	
 Operculate snails	**# OF KINDS**	 Non-operculate snails	**# OF KINDS**	 Aquatic sowbug	
 Aquatic worm	R	 Leech		 Flatworm	

Other aquatic life observed or collected: COLLECTED THE ELK RIVER CRAYFISH (CAMBARUS ELKENSIS). OBSERVED SEVERAL KINDS OF SHINERS AND DARTERS.

STREAM SCORE

After the sorting and identifications is complete, the macroinvertebrates are assessed using four metrics. First, transform your abundance rating into numbers using this code (**A** = **6; C** = **3**; **R** = **1**) and follow the instructions below to complete all calculations. Note: The **SHADING** indicates that multiple kinds are possible within the group.

1. **Biotic Index**: Multiply the abundance number by the tolerance value to calculate the tolerance score. Add the entire tolerance score column and the abundance column. Divide the tolerance total by the abundance total.
2. **Total Taxa**: Calculate the total number of kinds.
3. **EPT Taxa**: Calculate the total number of kinds from the stoneflies, mayflies, and all caddisflies.

The final step is to determine a **point value** for each metric. These points are added together to determine your overall **stream score** and integrity rating. Note: **Don't forget to record the number of kinds**.

BENTHIC MACROINVERTEBRATES	Abundance	Tolerance Value	Tolerance Score	Number of Kinds
Stoneflies (Order Plecoptera)	3	2	6	3
Mayflies (Order Ephemeroptera)	3	3	9	4
Case-building caddisflies (Order Trichoptera)	1	3	3	1
Net-spinning caddisflies (Order Trichoptera)	3	4	12	1
Common netspinner (Family Hydropsychidae)	3	5	15	1
Free-living caddisfly (Family Rhyacophilidae)		3		
Dragonflies (Sub-order Anisoptera)	3	4	12	1
Damselflies (Sub-order Zygoptera)		7		
Riffle beetle (Family Elmidae)	1	4	4	1
Water penny (Family Psephenidae)	3	3	9	1
Other Beetles (Order Coleoptera)		6		
True Bugs (Order Hemiptera)		8		1
Hellgrammite (Family Corydalidae)	3	3	9	
Alderfly (Family Sialidae)		6		1
Non-biting midge (Family Chironomidae)	3	8	24	
Black fly (Family Simuliidae)		6		
Crane fly (Family Tipulidae)		4		1
Watersnipe fly (Family Athericidae)	3	3	9	
Other True flies (Order Diptera)		7		
Water mite (Order Hydrachnida)		6		1
Crayfish (Order Decapoda)	6	5	30	
Sideswimmer (Order Amphipoda)		5		
Aquatic sowbug (Order Isopoda)		7		
Operculate snails (Sub-class Prosobranchia)		5		
Non-operculate snails (Sub-class Pulmonata)		7		
Clams (Order Veneroida)		6		
Mussel (Family Unionidae)		4		1
Aquatic worm (Class Oligochaeta)	1	10	10	1
Leech (Class Hirudinea)		10		
Flatworm (Class Turbellaria)		7		
Other invertebrates (describe)	Total Abundance		Total Tolerance	Total Taxa (# OF KINDS)
	36		152	18

Metrics	Results	Points	10	8	6	4	2
1. Total Taxa	18	8	> 18	18 - 15	14 - 11	10 - 7	< 7
2. EPT Taxa	10	8	> 10	10 - 8	7 - 5	4 - 2	< 2
3. Biotic Index	4.22	8	< 3.5	3.5 – 4.5	4.6 – 5.4	5.5 – 6.5	> 6.5

STREAM SCORE **24**

Integrity Rating Scale

> 24	24 - 19	18 - 13	< 13
Optimal	Suboptimal	Marginal	Poor