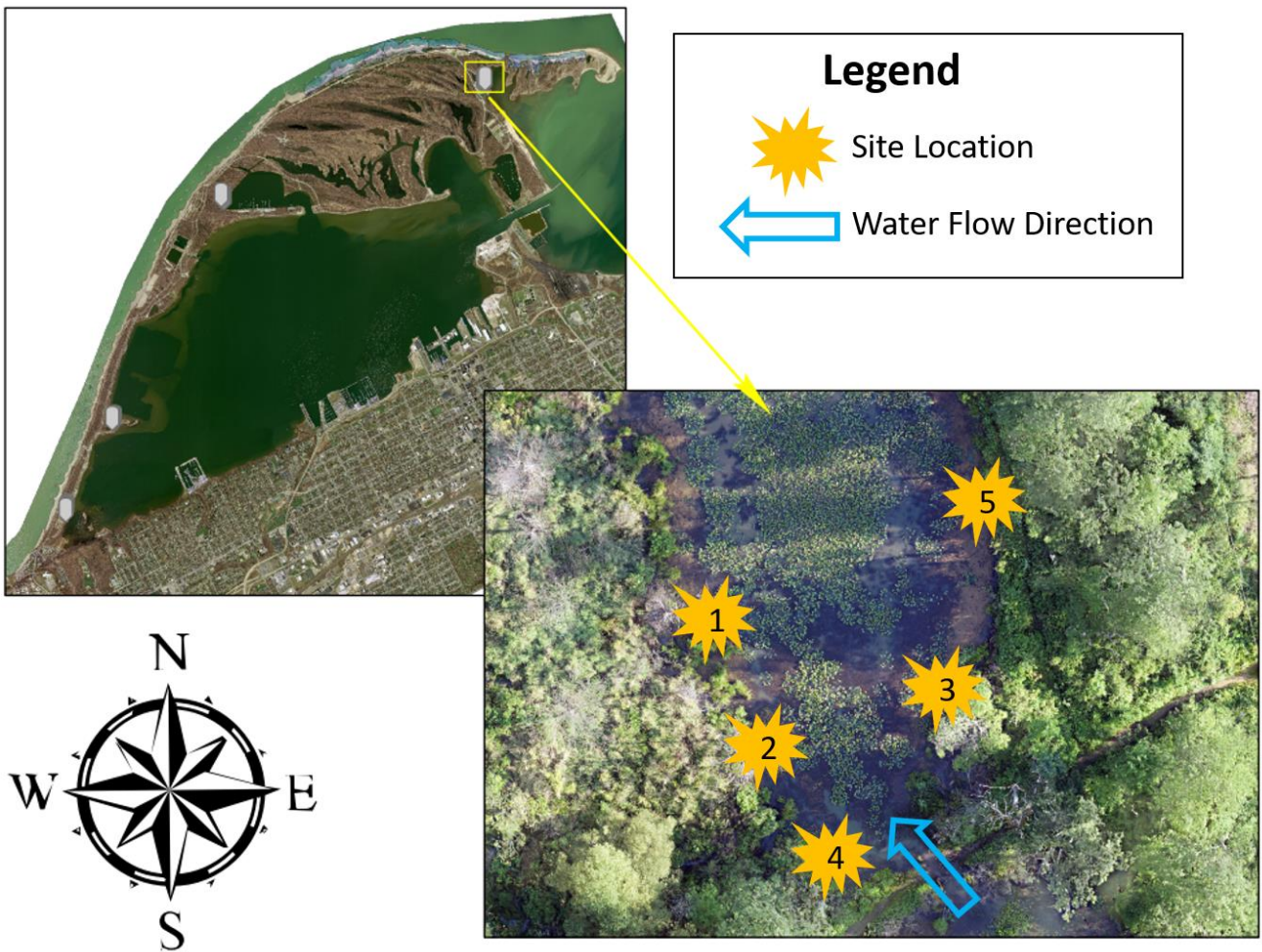







Regional Science Consortium Macroinvertebrate Investigation to Determine Water Quality on Presque Isle State Park

Student Worksheet

Site Map

Macroinvertebrate Bottle Trapping on Presque Isle State Park



| Site 1 | |
|---|---|
| Macro 1 | Macro 2 |
|  |  |
| Genus: | Genus: |
| Quantity: 2 | Quantity: 4 |
| Macro 3 | Macro 4 |
|  |  |
| Genus: | Genus: |
| Quantity: 1 | Quantity: 1 |
| Macro 5 | |
|  | |
| Genus: | |
| Quantity: 2 | |

Site 1 Water Quality Calculations

| Intolerant Species | # | Moderately Tolerant Species | # | Tolerant Species | # |
|--|---|---|---|---|---|
| Caddisfly Larvae | | Crane Fly Larvae | | Aquatic Worms* | |
| Dobsonfly Larvae | | Damselfly Larvae | | Blackfly Larvae | |
| Mayfly Larvae | | Dragonfly Larvae | | Planaria (flatworms) | |
| Riffle Beetle | | Scuds | | Midge Larvae | |
| Stonefly Larvae | | Alderfly Larvae | | Pouch Snails | |
| Water Penny | | Beetle Larvae | | Leeches | |
| Total = _____ | | Total = _____ | | Total = _____ | |
| # Sensitive Individuals found x 3 = Index Value | | # Somewhat Sensitive Individuals found x 2 = Index Value | | # Tolerant Individuals found x 1 = Index Value | |
| Index Value = _____ | | Index Value = _____ | | Index Value = _____ | |

TOTAL INDEX VALUE (sum of all values) = _____

Circle the water quality rating for Site 1 below:







Excellent (>22)

Good (17-22)

Fair (11-16)

Poor (<11)

*Aquatic Worms – category that includes: Tubifex worm, Horsehair worm, Bristle worm, and Nematode or Threadworm

| Site 2 | |
|---|--|
| Macro 1 | Macro 2 |
|  |  |
| Genus: | Genus: |
| Quantity: 2 | Quantity: 3 |
| Macro 3 | Macro 4 |
|  |  |
| Genus: | Genus: |
| Quantity: 3 | Quantity: 2 |
| Macro 5 | Macro 6 |
|  |  |
| Genus: | Genus: |
| Quantity: 1 | Quantity: 2 |

Site 2 Water Quality Calculations

| Intolerant Species | # | Moderately Tolerant Species | # | Tolerant Species | # |
|--|---|---|---|---|---|
| Caddisfly Larvae | | Crane Fly Larvae | | Aquatic Worms* | |
| Dobsonfly Larvae | | Damselfly Larvae | | Blackfly Larvae | |
| Mayfly Larvae | | Dragonfly Larvae | | Planaria (flatworms) | |
| Riffle Beetle | | Scuds | | Midge Larvae | |
| Stonefly Larvae | | Alderfly Larvae | | Pouch Snails | |
| Water Penny | | Beetle Larvae | | Leeches | |
| Total = _____ | | Total = _____ | | Total = _____ | |
| # Sensitive Individuals found x 3 = Index Value | | # Somewhat Sensitive Individuals found x 2 = Index Value | | # Tolerant Individuals found x 1 = Index Value | |
| Index Value = _____ | | Index Value = _____ | | Index Value = _____ | |

TOTAL INDEX VALUE (sum of all values) = _____

Circle the water quality rating for Site 2 below:







Excellent (>22)

Good (17-22)

Fair (11-16)

Poor (<11)

*Aquatic Worms – category that includes: Tubifex worm, Horsehair worm, Bristle worm, and Nematode or Threadworm

| Site 3 | |
|---|--|
| Macro 1 | Macro 2 |
|  |  |
| Genus: | Genus: |
| Quantity: 2 | Quantity: 1 |
| Macro 3 | Macro 4 |
|  |  |
| Genus: | Genus: |
| Quantity: 2 | Quantity: 3 |
|  |  |
| Genus: | Genus: |
| Quantity: 2 | Quantity: 1 |

Site 3 Water Quality Calculations

| Intolerant Species | # | Moderately Tolerant Species | # | Tolerant Species | # |
|--|---|---|---|---|---|
| Caddisfly Larvae | | Crane Fly Larvae | | Aquatic Worms* | |
| Dobsonfly Larvae | | Damselfly Larvae | | Blackfly Larvae | |
| Mayfly Larvae | | Dragonfly Larvae | | Planaria (flatworms) | |
| Riffle Beetle | | Scuds | | Midge Larvae | |
| Stonefly Larvae | | Alderfly Larvae | | Pouch Snails | |
| Water Penny | | Beetle Larvae | | Leeches | |
| Total = _____ | | Total = _____ | | Total = _____ | |
| # Sensitive Individuals found x 3 = Index Value | | # Somewhat Sensitive Individuals found x 2 = Index Value | | # Tolerant Individuals found x 1 = Index Value | |
| Index Value = _____ | | Index Value = _____ | | Index Value = _____ | |

TOTAL INDEX VALUE (sum of all values) = _____

Circle the water quality rating for Site 3 below:





Excellent (>22)

Good (17-22)

Fair (11-16)

Poor (<11)

*Aquatic Worms – category that includes: Tubifex worm, Horsehair worm, Bristle worm, and Nematode or Threadworm

| Site 4 | |
|--|---|
| Macro 1 | Macro 2 |
|  |  |
| Genus: | Genus: |
| Quantity: 1 | Quantity: 1 |
| Macro 3 | Macro 4 |
|  |  |
| Genus: | Genus: |
| Quantity: 3 | Quantity: 1 |

Site 4 Water Quality Calculations

| Intolerant Species | # | Moderately Tolerant Species | # | Tolerant Species | # |
|--|---|---|---|---|---|
| Caddisfly Larvae | | Crane Fly Larvae | | Aquatic Worms* | |
| Dobsonfly Larvae | | Damselfly Larvae | | Blackfly Larvae | |
| Mayfly Larvae | | Dragonfly Larvae | | Planaria (flatworms) | |
| Riffle Beetle | | Scuds | | Midge Larvae | |
| Stonefly Larvae | | Alderfly Larvae | | Pouch Snails | |
| Water Penny | | Beetle Larvae | | Leeches | |
| Total = _____ | | Total = _____ | | Total = _____ | |
| # Sensitive Individuals found x 3 = Index Value | | # Somewhat Sensitive Individuals found x 2 = Index Value | | # Tolerant Individuals found x 1 = Index Value | |
| Index Value = _____ | | Index Value = _____ | | Index Value = _____ | |

TOTAL INDEX VALUE (sum of all values) = _____

Circle the water quality rating for Site 4 below:





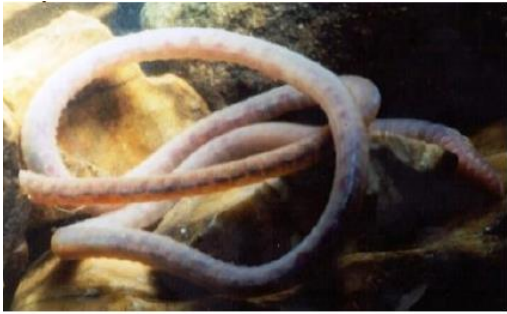

Excellent (>22)

Good (17-22)

Fair (11-16)

Poor (<11)

*Aquatic Worms – category that includes: Tubifex worm, Horsehair worm, Bristle worm, and Nematode or Threadworm

| Site 5 | |
|---|--|
| Macro 1 | Macro 2 |
|  |  |
| Genus: | Genus: |
| Quantity: 1 | Quantity: 1 |
| Macro 3 | Macro 4 |
|  |  |
| Genus: | Genus: |
| Quantity: 2 | Quantity: 1 |
| Macro 5 | Macro 6 |
|  |  |
| Genus: | Genus: |
| Quantity: 3 | Quantity: 2 |

Site 5 Water Quality Calculations

| Intolerant Species | # | Moderately Tolerant Species | # | Tolerant Species | # |
|--|---|---|---|---|---|
| Caddisfly Larvae | | Crane Fly Larvae | | Aquatic Worms* | |
| Dobsonfly Larvae | | Damselfly Larvae | | Blackfly Larvae | |
| Mayfly Larvae | | Dragonfly Larvae | | Planaria (flatworms) | |
| Riffle Beetle | | Scuds | | Midge Larvae | |
| Stonefly Larvae | | Alderfly Larvae | | Pouch Snails | |
| Water Penny | | Beetle Larvae | | Leeches | |
| Total = _____ | | Total = _____ | | Total = _____ | |
| # Sensitive Individuals found x 3 = Index Value | | # Somewhat Sensitive Individuals found x 2 = Index Value | | # Tolerant Individuals found x 1 = Index Value | |
| Index Value = _____ | | Index Value = _____ | | Index Value = _____ | |

TOTAL INDEX VALUE (sum of all values) = _____

Circle the water quality rating for Site 5 below:

Excellent (>22)

Good (17-22)

Fair (11-16)

Poor (<11)

*Aquatic Worms – category that includes: Tubifex worm, Horsehair worm, Bristle worm, and Nematode or Threadworm

Macroinvertebrate Investigation Questions

1. Which site has the worst water quality? Which macroinvertebrates helped you come to this conclusion?
2. Which site has the best water quality? Which macroinvertebrates helped you come to this conclusion?
3. Based on the Site Map, what could impact the water quality of these sites?
4. What kinds of Point and/or Non-Point Source Pollution might impact this area?