# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11728 | 130722305 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0010 | 13T-010 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Duck Creek / 10th Street | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☑ None | ☐ No Evidence |
| ☐ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☑ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | 1 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | 20 |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | .5 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 20 | 10 | 50 | 20 |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 20 | 60 | 20 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0010 | 13T-010 | MHAB | AB11728 | 130722305 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Duck Creek | 10th Street | 040400010506 | 04040001040010 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4596688.54 | 479989.22 | 54 | 9.376 | 3.091 | 48 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 7 | | 4 |
| 1234 (GLOSSIPHONIIDAE) | 5 | | |
| 1207 (VIVIPARIDAE) | 21 | | 6 |
| 2188 (Campeloma) | 4 | | |
| 1089 (Helisoma) | 1 | | 6 |
| 2252 (Physella) | 25 | | 8 |
| 2181 (Sphaerium) | 31 | | 6 |
| 9036 (Caecidotea) | 2 | | 8 |
| 9068 (Gammarus) | 22 | | 6 |
| 9050 (Hyalella) | 9 | | |
| 1251 (ISOTOMIDAE) | 1 | | |
| 3157 (Aeshna) | 1 | | |
| 3282 (Plathemis lydia) | 1 | | 8 |
| 1026 (COENAGRIONIDAE) | 3 | | 9 |
| 7031 (Ischnura verticalis) | 3 | | |
| 3546 (Enallagma) | 1 | | 9 |
| 3568 (Argia) | 1 | | 5 |
| 9095 (Argia fumipennis) | 4 | | |
| 7189 (Sigara) | 1 | | |
| 7225 (Notonecta irrorata) | 1 | | |
| 7216 (Ranatra) | 2 | | |
| 9290 (Gerridae (Gerrinae)) | 1 | | |
| 3600 (Peltodytes duodecimpunctatus) | 1 | | |
| 3861 (Anacaena) | 3 | | |
| 3946 (Cyphon) | 17 | | |
| 7296 (Dubiraphia) | 2 | 2L | 5 |
| 7299 (Dubiraphia quadrinotata) | 18 | 8M, 9F, 0104.1, 0104.2 | 3 |
| 9318 (Oecetis sp. A) | 4 | | |
| 7929 (Clinotanypus pinguis) | 2 | | 8 |
| 7926 (Tanypodinae (Subfamily)) | 1 | | |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 8112 (Dicrotendipes) | 1 | | 6 |
| 8235 (Paratanytarsus) | 3 | | 4 |
| 8238 (Rheotanytarsus) | 1 | | 3 |
| 9238 (Polypedilum (Uresipedilum) flavum) | 1 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 1 | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 36 | 3 |
| Total No. Individuals: | 203 | 3 |
| EPT Taxa: | 1 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 36.36 | 3 |
| % Non-insects excluding Astacidae: | 62.56 | 1 |
| Diptera Taxa: | 8 | 3 |
| % Intolerant (0-3): | 9.36 | 1 |
| % Tolerant (8-10): | 16.75 | 3 |
| % Predators FFG 1: | 10.34 | 1 |
| % Shredders + Scrapers FFG 1: | 33.5 | 5 |
| % Collector-Filterers FFG 1: | 15.76 | 3 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **28** |

**Supplemental Metrics**

| | |
|---|---|
| HBI | 5.94 |
| Shannon-Weaver Index | 4.14 |
| Shannon Equitability | .44 |
| % Dominant 3 Taxon | 38.42 |
| % Chironomidae | 5.42 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11729 | 130722306 | ☐ Black Light | ☐ Kick | 1 |
| Site Name | EPA ID | | | |
| LMG-05-0032 | 13T-011 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Winkler #3 1.8 mg/l.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Duck Creek / 750 W | Porter | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| Erosion | NPS Pollution |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| Riffle | Run | Pool |
| | .2 | .5 |

| Distances | |
|---|---|
| Riffle-Riffle | Bend-Bend |
| | 20 |

**Predominant Surrounding Land Use**
☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | 2 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| Bedrock | Boulder (>10in) | Cobble (2.5-10in) | Gravel (0.1-2.5in) | Sand (gritty) | Silt | Clay (slick) |
| | | | 10 | 10 | 60 | 20 |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| Detritus (sticks, woods) | Detritus (CPOM) | Muck/Mud (black, fine FPOM) | Marl (gray w/shell fragments) |
| 60 | 30 | 10 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid
☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0032 | 13T-011 | MHAB | AB11729 | 130722306 | 7/22/13 | Porter |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Duck Creek | 750 W | 040400010506 | 04040001040010 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4596111.16 | 482414.53 | 54 | 15.843 | 6.517 | 45 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1207 (VIVIPARIDAE) | 1 | | 6 |
| 2252 (Physella) | 1 | | 8 |
| 2181 (Sphaerium) | 5 | | 6 |
| 9036 (Caecidotea) | 34 | | 8 |
| 9068 (Gammarus) | 21 | | 6 |
| 8996 (Orconectes) | 3 | | 4 |
| 8991 (Procambarus) | 1 | | |
| 3448 (Somatochlora) | 6 | | 1 |
| 1041 (CORIXIDAE) | 7 | | 5 |
| 7189 (Sigara) | 22 | 10M, 12F | |
| 7201 (Trichocorixa calva) | 4 | 1M, 3F | 4 |
| 7225 (Notonecta irrorata) | 2 | | |
| 7215 (Nepa apiculata) | 1 | | |
| 1038 (GERRIDAE) | 4 | | |
| 7111 (Rheumatobates) | 6 | | |
| 7099 (Aquarius remigis) | 3 | | |
| 7122 (Microvelia) | 2 | | |
| 3601 (Peltodytes lengi) | 1 | | |
| 3863 (Paracymus) | 1 | | |
| 7309 (Stenelmis crenata) | 2 | 0111.1 | 5 |
| 7299 (Dubiraphia quadrinotata) | 3 | 0111.2 | 3 |
| 7298 (Dubiraphia minima) | 2 | 0111.3 | |
| 3899 (Helophorus) | 1 | | 5 |
| 7941 (Natarsia baltimoreus) | 1 | | 6 |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 8168 (Paratendipes albimanus) | 4 | | 4 |
| 8211 (Stictochironomus) | 6 | | 4 |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 27 | 3 |
| Total No. Individuals: | 145 | 3 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 42.76 | 1 |
| Diptera Taxa: | 4 | 1 |
| % Intolerant (0-3): | 6.21 | 1 |
| % Tolerant (8-10): | 24.14 | 3 |
| % Predators FFG 1: | 38.62 | 5 |
| % Shredders + Scrapers FFG 1: | 3.45 | 1 |
| % Collector-Filterers FFG 1: | 3.45 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.87 |
| Shannon-Weaver Index | 3.82 |
| Shannon Equitability | .41 |
| % Dominant 3 Taxon | 53.1 |
| % Chironomidae | 8.28 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11734 | 130723302 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0034 | 13T-016 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Deep River / 89th Avenue | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☑ None | ☑ No Evidence |
| ☐ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .5 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | 20 |

**Predominant Surrounding Land Use**

☑ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 2 | 1 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 80 | 20 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 50 | 30 | 20 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☑ Sheen ☐ None ☐ Glob

**Stream Type**
☐ Warm ☑ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Slightly Turbid ☑ Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0034 | 13T-016 | MHAB | AB11734 | 130723302 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Deep River | 89th Avenue | 040400010504 | 04040001030050 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4589441.49 | 480848.51 | 54 | 23.493 | 2.364 | 52 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1435 (Limnodrilus hoffmeisteri) | 2 | PL=450um,500um | 10 |
| 1422 (Aulodrilus pluriseta) | 1 | | 7 |
| 1498 (Nais) | 1 | | 8 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 11 | | |
| 1234 (GLOSSIPHONIIDAE) | 1 | | |
| 1089 (Helisoma) | 1 | | 6 |
| 2252 (Physella) | 8 | | 8 |
| 1092 (PISIDIIDAE) | 11 | | 8 |
| 2185 (Sphaerium striatinum) | 1 | | 6 |
| 2162 (Pisidium) | 11 | | 6 |
| 9036 (Caecidotea) | 2 | | 8 |
| 9068 (Gammarus) | 180 | | 6 |
| 8996 (Orconectes) | 1 | 1F | 4 |
| 3282 (Plathemis lydia) | 1 | | 8 |
| 7201 (Trichocorixa calva) | 1 | 1M | 4 |
| 7099 (Aquarius remigis) | 1 | | |
| 7122 (Microvelia) | 3 | | |
| 7123 (Microvelia americana) | 4 | | |
| 9290 (Gerridae (Gerrinae)) | 1 | | |
| 3863 (Paracymus) | 1 | 1A | |
| 7299 (Dubiraphia quadrinotata) | 1 | 1A-F | 3 |
| 7321 (Macronychus glabratus) | 7 | 6A,1L | 3 |
| 8083 (Chironomini (Tribe)) | 5 | 1P | |
| 8168 (Paratendipes albimanus) | 28 | | 4 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 3 | | |
| 8320 (Chrysops) | 2 | | 5 |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 26 | 3 |
| Total No. Individuals: | 289 | 5 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 79.58 | 1 |
| Diptera Taxa: | 4 | 1 |
| % Intolerant (0-3): | 2.77 | 1 |
| % Tolerant (8-10): | 8.65 | 5 |
| % Predators FFG 1: | 2.42 | 1 |
| % Shredders + Scrapers FFG 1: | 3.11 | 1 |
| % Collector-Filterers FFG 1: | 7.96 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.88 |
| Shannon-Weaver Index | 2.38 |
| Shannon Equitability | .25 |
| % Dominant 3 Taxon | 75.78 |
| % Chironomidae | 12.46 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11735 | 130723303 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0014 | 13T-017 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Deep River / 93rd Avenue | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☑ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .2 | .4 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | 20 |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | 1 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 30 | 60 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 40 | 60 | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type**
☐ Warm ☑ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid ☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0014 | 13T-017 | MHAB | AB11735 | 130723303 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Deep River | 93rd Avenue | 040400010504 | 04040001030050 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4588648.79 | 479343.25 | 54 | 15.289 | 3.505 | 53 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 1 | | 4 |
| 1396 (LUMBRICULIDAE) | 4 | | 5 |
| 1402 (Stylodrilus heringianus) | 1 | | 5 |
| 1444 (Potamothrix moldaviensis) | 1 | | 8 |
| 1498 (Nais) | 1 | | 8 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 1 | | |
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 2252 (Physella) | 1 | | 8 |
| 2156 (Corbicula fluminea) | 12 | | 6 |
| 1092 (PISIDIIDAE) | 15 | | 8 |
| 2181 (Sphaerium) | 1 | | 6 |
| 2162 (Pisidium) | 7 | | 6 |
| 9068 (Gammarus) | 8 | | 6 |
| 3071 (Baetis flavistriga) | 2 | | 3 |
| 3534 (Calopteryx) | 1 | | 4 |
| 7099 (Aquarius remigis) | 3 | | |
| 7122 (Microvelia) | 1 | | |
| 7123 (Microvelia americana) | 1 | | |
| 3946 (Cyphon) | 2 | 2L | |
| 1068 (ELMIDAE) | 1 | 1L | 4 |
| 7296 (Dubiraphia) | 3 | 3L | 5 |
| 7299 (Dubiraphia quadrinotata) | 28 | 0113.1 | 3 |
| 7298 (Dubiraphia minima) | 41 | 0113.2 | |
| 7321 (Macronychus glabratus) | 3 | 2A, 1L | 3 |
| 3432 (Cheumatopsyche) | 12 | | 3 |
| 8980 (Hydropsyche betteni grp) | 7 | | |
| 9136 (Molanna tryphena) | 1 | | |
| 9162 (Nilotanypus fimbriatus) | 1 | | 3 |
| 7974 (Pentaneura inconspicua) | 1 | | 5 |
| 8083 (Chironomini (Tribe)) | 4 | | |
| 9261 (Thienemannimyia grp.) | 4 | | |
| 8099 (Cryptochironomus) | 1 | | 5 |
| 9296 (Microtendipes pedellus grp) | 1 | | |
| 8168 (Paratendipes albimanus) | 3 | | 4 |
| 8235 (Paratanytarsus) | 1 | | 4 |
| 8238 (Rheotanytarsus) | 2 | | 3 |
| 8241 (Tanytarsus) | 2 | | 4 |
| 9204 (Phaenopsectra/Tribelos) | 1 | | |
| 9278 (Polypedilum (Tripodura) halterale-simulans grp) | 2 | | |
| 9238 (Polypedilum (Uresipedilum) flavum) | 5 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 4 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 42 | 5 |
| Total No. Individuals: | 193 | 3 |
| EPT Taxa: | 4 | 5 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 15.63 | 5 |
| % Non-insects excluding Astacidae: | 27.98 | 3 |
| Diptera Taxa: | 15 | 5 |
| % Intolerant (0-3): | 24.87 | 3 |
| % Tolerant (8-10): | 9.33 | 5 |
| % Predators FFG 1: | 4.66 | 1 |
| % Shredders + Scrapers FFG 1: | 1.55 | 1 |
| % Collector-Filterers FFG 1: | 26.94 | 1 |
| % Sprawlers: | 1.04 | 1 |
| **mIBI Metric Score:** | | **38** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 4.8 |
| Shannon-Weaver Index | 4.3 |
| Shannon Equitability | .46 |
| % Dominant 3 Taxon | 43.52 |
| % Chironomidae | 16.58 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 8274 (Stratiomys) | 1 | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11737 | 130723307 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0035 | 13T-019 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Hach Reading "99.9": turbidity not taken due to water disturbed by sampling.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Deer Creek / 97th Avenue | Lake | 07/23/2013 |

☑ ***Habitat Complete*** ☐ ***Sample Quality Rejected***

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☑ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .7 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | 75 |

**Predominant Surrounding Land Use**
☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☑ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | 1 | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ **Are the undersides of stones, which are not deeply embedded, black?**

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 10 | 40 | 10 | 40 |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 40 | 20 | 40 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid
☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0035 | 13T-019 | MHAB | AB11737 | 130723307 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Deer Creek | 97th Avenue | 040400010504 | 04040001030050 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4587852.13 | 477429.44 | 54 | 9.535 | 5.883 | 41 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 1 | | 4 |
| 1234 (GLOSSIPHONIIDAE) | 2 | | |
| 1089 (Helisoma) | 13 | | 6 |
| 2252 (Physella) | 24 | | 8 |
| 1201 (HYDROBIIDAE) | 3 | | 7 |
| 1092 (PISIDIIDAE) | 1 | | 8 |
| 2181 (Sphaerium) | 3 | | 6 |
| 2161 (Musculium transversum) | 26 | | 6 |
| 9036 (Caecidotea) | 13 | | 8 |
| 9050 (Hyalella) | 6 | | |
| 8996 (Orconectes) | 1 | 1MI | 4 |
| 3331 (Sympetrum) | 8 | | 10 |
| 3540 (Ischnura) | 1 | | 9 |
| 7031 (Ischnura verticalis) | 4 | | |
| 3542 (Ischnura posita) | 2 | | |
| 1041 (CORIXIDAE) | 2 | | 5 |
| 7189 (Sigara) | 1 | | |
| 7201 (Trichocorixa calva) | 9 | 1M,8F | 4 |
| 7184 (Palmacorixa buenoi) | 2 | | 4 |
| 7230 (Neoplea striola) | 2 | | |
| 7121 (Trepobates subnitidus) | 1 | | |
| 7122 (Microvelia) | 1 | | |
| 7123 (Microvelia americana) | 8 | | |
| 3600 (Peltodytes duodecimpunctatus) | 14 | 14A | |
| 3605 (Peltodytes edentulus) | 1 | 1A | 6 |
| 3676 (Hydrovatus) | 1 | 1A | |
| 3946 (Cyphon) | 7 | 7L | |
| 7299 (Dubiraphia quadrinotata) | 4 | 2M,2F | 3 |
| 7929 (Clinotanypus pinguis) | 3 | | 8 |
| 7984 (Procladius) | 3 | | 7 |
| 9261 (Thienemannimyia grp.) | 1 | | |
| 8099 (Cryptochironomus) | 1 | | 5 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 32 | 3 |
| Total No. Individuals: | 169 | 3 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 54.44 | 1 |
| Diptera Taxa: | 4 | 1 |
| % Intolerant (0-3): | 2.37 | 1 |
| % Tolerant (8-10): | 29.59 | 1 |
| % Predators FFG 1: | 21.3 | 3 |
| % Shredders + Scrapers FFG 1: | 28.4 | 5 |
| % Collector-Filterers FFG 1: | 17.75 | 3 |
| % Sprawlers: | 2.37 | 1 |
| **mIBI Metric Score:** | | **28** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.69 |
| Shannon-Weaver Index | 4.21 |
| Shannon Equitability | .45 |
| % Dominant 3 Taxon | 37.87 |
| % Chironomidae | 4.73 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11739 | 130723309 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0017 | 13T-021 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Niles Ditch / 121st Avenue | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☑ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☑ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 8 | 1 | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☑ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other: 2 feet of decomposing plant material

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | | 100 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 10 | 10 | 80 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0017 | 13T-021 | MHAB | AB11739 | 130723309 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Niles Ditch | 121st Avenue | 040400010502 | 04040001030040 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4583017.13 | 474774.82 | 54 | 1.36 | 7.238 | 27 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1435 (Limnodrilus hoffmeisteri) | 2 | PL=300,350um | 10 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 15 | | |
| 1234 (GLOSSIPHONIIDAE) | 3 | | |
| 1233 (ERPOBDELLIDAE) | 6 | | |
| 2202 (Valvata bicarinata) | 11 | | |
| 2252 (Physella) | 5 | | 8 |
| 1092 (PISIDIIDAE) | 11 | | 8 |
| 2181 (Sphaerium) | 1 | | 6 |
| 2157 (Musculium) | 15 | | 6 |
| 9036 (Caecidotea) | 13 | | 8 |
| 7031 (Ischnura verticalis) | 1 | | |
| 7201 (Trichocorixa calva) | 4 | 3M, 1F | 4 |
| 7203 (Trichocorixa sexcincta) | 6 | 2M, 4F | 4 |
| 3600 (Peltodytes duodecimpunctatus) | 21 | 21A | |
| 3601 (Peltodytes lengi) | 1 | 1A | |
| 3602 (Peltodytes muticus) | 9 | 9A | |
| 3605 (Peltodytes edentulus) | 1 | 1A | 6 |
| 3851 (Berosus peregrinus) | 2 | 2A | 6 |
| 7849 (Culicoides) | 1 | | 10 |
| 9317 (Zavreliella marmorata) | 1 | | |
| 8112 (Dicrotendipes) | 1 | | 6 |
| 8126 (Glyptotendipes) | 1 | | 6 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 1 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 23 | 3 |
| Total No. Individuals: | 132 | 3 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 25 | 3 |
| % Non-insects excluding Astacidae: | 62.12 | 1 |
| Diptera Taxa: | 5 | 1 |
| % Intolerant (0-3): | 0 | 1 |
| % Tolerant (8-10): | 24.24 | 3 |
| % Predators FFG 1: | 15.91 | 1 |
| % Shredders + Scrapers FFG 1: | 6.06 | 1 |
| % Collector-Filterers FFG 1: | 21.21 | 1 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **20** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.79 |
| Shannon-Weaver Index | 3.85 |
| Shannon Equitability | .41 |
| % Dominant 3 Taxon | 38.64 |
| % Chironomidae | 3.03 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11751 | 130723406 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0028 | 13T-033 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Turbidity taken with Hach = 23.1.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Turkey Creek / 73rd Avenue | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .2 | .5 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**
☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 1 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other Silt

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse ☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 20 | 80 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 20 | | 80 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☑ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0028 | 13T-033 | MHAB | AB11751 | 130723406 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Turkey Creek | 73rd Avenue | 040400010503 | 04040001030010 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4592739.34 | 468810.15 | 54 | 19.835 | 1.731 | 30 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 2 | | |
| 1234 (GLOSSIPHONIIDAE) | 3 | | |
| 1233 (ERPOBDELLIDAE) | 2 | | |
| 2225 (Fossaria) | 2 | | 6 |
| 2272 (Planorbella) | 3 | | |
| 2252 (Physella) | 30 | | 8 |
| 2162 (Pisidium) | 1 | | 6 |
| 9056 (Crangonyx) | 1 | | 6 |
| 8996 (Orconectes) | 2 | 1M,1F | 4 |
| 3183 (Caenis) | 1 | | 3 |
| 1120 (ANISOPTERA) | 1 | | |
| 3230 (Aeshna umbrosa) | 2 | | |
| 3331 (Sympetrum) | 3 | | 10 |
| 1026 (COENAGRIONIDAE) | 3 | | 9 |
| 3540 (Ischnura) | 4 | | 9 |
| 7031 (Ischnura verticalis) | 11 | | |
| 3542 (Ischnura posita) | 2 | | |
| 1041 (CORIXIDAE) | 1 | | 5 |
| 7189 (Sigara) | 1 | | |
| 7201 (Trichocorixa calva) | 6 | | 4 |
| 7208 (Belostoma flumineum) | 1 | | 4 |
| 3591 (Haliplus borealis) | 1 | 1A | 5 |
| 3600 (Peltodytes duodecimpunctatus) | 1 | 1A | |
| 3602 (Peltodytes muticus) | 1 | 1A | |
| 3605 (Peltodytes edentulus) | 13 | 13A | 6 |
| 3863 (Paracymus) | 1 | 1A | |
| 3872 (Tropisternus) | 1 | 1L | |
| 9216 (Tropisternus lateralis) | 1 | 1A | |
| 7300 (Dubiraphia vittata) | 3 | 1M,2F; 0122.1 | |
| 8168 (Paratendipes albimanus) | 15 | | 4 |
| 8235 (Paratanytarsus) | 1 | | 4 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 3 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 32 | 3 |
| Total No. Individuals: | 123 | 1 |
| EPT Taxa: | 1 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 5.26 | 5 |
| % Non-insects excluding Astacidae: | 35.77 | 1 |
| Diptera Taxa: | 3 | 1 |
| % Intolerant (0-3): | .81 | 1 |
| % Tolerant (8-10): | 32.52 | 1 |
| % Predators FFG 1: | 27.64 | 3 |
| % Shredders + Scrapers FFG 1: | 37.4 | 5 |
| % Collector-Filterers FFG 1: | .81 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **28** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.45 |
| Shannon-Weaver Index | 4.05 |
| Shannon Equitability | .43 |
| % Dominant 3 Taxon | 47.15 |
| % Chironomidae | 15.45 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11730 | 130722108 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0011 | 13T-012 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Deep River / Arizona Street | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .7 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☑ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 20 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 30 | 70 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 50 | 20 | 30 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid ☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0011 | 13T-012 | MHAB | AB11730 | 130722108 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Deep River | Arizona Street | 040400010507 | 04040001030060 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4595623.96 | 476135.55 | 54 | 1.48 | 78.79 | 46 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 2 | | 4 |
| 1422 (Aulodrilus pluriseta) | 1 | | 7 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 1 | | |
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 1204 (GASTROPODA) | 1 | | 7 |
| 1206 (PLANORBIDAE) | 2 | | 6 |
| 2156 (Corbicula fluminea) | 2 | | 6 |
| 1083 (ACARI) | 2 | | 4 |
| 9036 (Caecidotea) | 1 | | 8 |
| 9050 (Hyalella) | 137 | | |
| 9056 (Crangonyx) | 1 | | 6 |
| 3081 (Callibaetis) | 1 | | 6 |
| 3188 (Caenis latipennis) | 1 | | |
| 3251 (Nasiaeschna pentacantha) | 2 | | |
| 7046 (Epitheca princeps) | 1 | | |
| 3542 (Ischnura posita) | 3 | | |
| 1041 (CORIXIDAE) | 7 | | 5 |
| 7201 (Trichocorixa calva) | 16 | 8M, 8F | 4 |
| 7184 (Palmacorixa buenoi) | 14 | 9M, 5F | 4 |
| 7219 (Ranatra kirkaldyi) | 1 | | |
| 3601 (Peltodytes lengi) | 3 | | |
| 3602 (Peltodytes muticus) | 2 | | |
| 3605 (Peltodytes edentulus) | 1 | | 6 |
| 3851 (Berosus peregrinus) | 7 | | 6 |
| 3872 (Tropisternus) | 2 | | |
| 3946 (Cyphon) | 2 | 2L | |
| 7296 (Dubiraphia) | 1 | 1L | 5 |
| 7297 (Dubiraphia bivittata) | 2 | 0108.1 | 3 |
| 7298 (Dubiraphia minima) | 19 | 0108.2, 0108.3 | |
| 7295 (Ancyronyx variegatus) | 1 | | 4 |
| 7321 (Macronychus glabratus) | 3 | | 3 |
| 9222 (Cernotina/Polycentropus) | 2 | | |
| 7984 (Procladius) | 1 | | 7 |
| 9284 (Tribelos jucundus) | 3 | | |
| 8099 (Cryptochironomus) | 1 | | 5 |
| 9204 (Phaenopsectra/Tribelos) | 1 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 1 | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 37 | 3 |
| Total No. Individuals: | 249 | 3 |
| EPT Taxa: | 3 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 60.64 | 1 |
| Diptera Taxa: | 5 | 1 |
| % Intolerant (0-3): | 2.01 | 1 |
| % Tolerant (8-10): | .4 | 5 |
| % Predators FFG 1: | 13.25 | 1 |
| % Shredders + Scrapers FFG 1: | 5.22 | 1 |
| % Collector-Filterers FFG 1: | .8 | 5 |
| % Sprawlers: | 1.2 | 1 |
| **mIBI Metric Score:** | | **28** |

**Supplemental Metrics**

| | |
|---|---|
| HBI | 4.67 |
| Shannon-Weaver Index | 2.94 |
| Shannon Equitability | .31 |
| % Dominant 3 Taxon | 69.08 |
| % Chironomidae | 2.81 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11720 | 130722101 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0002 | 13T-001 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Burns Ditch / US 20 | Porter | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | 1 | 1.5 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☑ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☑ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 15 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 60 | 40 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 70 | | 30 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid
☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0002 | 13T-001 | MHAB | AB11720 | 130722101 | 7/22/13 | Porter |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Burns Ditch | US 20 | 040400010509 | 04040001040030 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4604681.61 | 481606.99 | 54 | 1.226 | 164.931 | 45 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 2252 (Physella) | 1 | | 8 |
| 9050 (Hyalella) | 21 | | |
| 3540 (Ischnura) | 1 | | 9 |
| 7031 (Ischnura verticalis) | 2 | | |
| 3542 (Ischnura posita) | 4 | | |
| 1041 (CORIXIDAE) | 5 | | 5 |
| 7201 (Trichocorixa calva) | 20 | 8M, 12F | 4 |
| 7202 (Trichocorixa kanza) | 1 | 1M | 4 |
| 7183 (Palmacorixa) | 2 | 2M | 5 |
| 7230 (Neoplea striola) | 2 | | |
| 1039 (BELOSTOMATIDAE) | 4 | | |
| 7111 (Rheumatobates) | 3 | | |
| 7117 (Trepobates) | 1 | | |
| 7123 (Microvelia americana) | 2 | | |
| 7144 (Mesovelia) | 2 | | |
| 7145 (Mesovelia mulsanti) | 2 | | |
| 3605 (Peltodytes edentulus) | 2 | | 6 |
| 3665 (Hygrotus) | 1 | | |
| 3677 (Hydrovatus pustulatus) | 1 | | |
| 3851 (Berosus peregrinus) | 1 | | 6 |
| 3884 (Enochrus ochraceus) | 1 | | |
| 3946 (Cyphon) | 5 | | |
| 7296 (Dubiraphia) | 1 | | 5 |
| 3476 (Hydropsyche bidens) | 1 | | 3 |
| 8083 (Chironomini (Tribe)) | 3 | | |
| 9250 (Ablabesmyia (Ablabesmyia) rhamphae grp.) | 2 | | |
| 8123 (Endochironomus) | 10 | | 6 |
| 8126 (Glyptotendipes) | 17 | | 6 |
| 8238 (Rheotanytarsus) | 1 | | 3 |
| 9204 (Phaenopsectra/Tribelos) | 1 | | |
| 9277 (Polypedilum (Tripodura) scalaenum grp) | 1 | | |
| 9238 (Polypedilum (Uresipedilum) flavum) | 1 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 33 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 33 | 3 |
| Total No. Individuals: | 155 | 3 |
| EPT Taxa: | 1 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 1.45 | 5 |
| % Non-insects excluding Astacidae: | 14.19 | 5 |
| Diptera Taxa: | 9 | 3 |
| % Intolerant (0-3): | 1.29 | 1 |
| % Tolerant (8-10): | 1.29 | 5 |
| % Predators FFG 1: | 31.61 | 3 |
| % Shredders + Scrapers FFG 1: | 12.26 | 3 |
| % Collector-Filterers FFG 1: | 11.61 | 3 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **36** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.19 |
| Shannon-Weaver Index | 3.97 |
| Shannon Equitability | .42 |
| % Dominant 3 Taxon | 47.74 |
| % Chironomidae | 44.52 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11723 | 130722106 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0006 | 13T-005 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Deep River / 29th Avenue | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | 1 | 1.5 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 18 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 70 | 30 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 80 | 10 | 10 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0006 | 13T-005 | MHAB | AB11723 | 130722106 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Deep River | 29th Avenue | 040400010508 | 04040001040020 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4601587.01 | 475455.57 | 54 | 1.226 | 150.342 | 55 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1489 (Dero vaga) | 1 | | 10 |
| 1498 (Nais) | 1 | | 8 |
| 9050 (Hyalella) | 8 | | |
| 7031 (Ischnura verticalis) | 3 | | |
| 3542 (Ischnura posita) | 3 | | |
| 3560 (Enallagma basidens) | 2 | | |
| 7230 (Neoplea striola) | 1 | | |
| 1038 (GERRIDAE) | 7 | | |
| 7111 (Rheumatobates) | 3 | | |
| 7117 (Trepobates) | 3 | | |
| 7121 (Trepobates subnitidus) | 8 | | |
| 3828 (Dineutus) | 2 | | 4 |
| 3851 (Berosus peregrinus) | 1 | | 6 |
| 3858 (Laccobius) | 1 | | 2 |
| 3908 (Helocombus bifidus) | 1 | | |
| 3946 (Cyphon) | 14 | 14L | |
| 7300 (Dubiraphia vittata) | 3 | 0107.1 | |
| 7984 (Procladius) | 1 | | 7 |
| 8083 (Chironomini (Tribe)) | 6 | | |
| 9250 (Ablabesmyia (Ablabesmyia) rhamphae grp.) | 1 | | |
| 8112 (Dicrotendipes) | 1 | | 6 |
| 8123 (Endochironomus) | 17 | | 6 |
| 8126 (Glyptotendipes) | 10 | | 6 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 4 | | |
| 9219 (Odontomyia/Hedriodiscus) | 1 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 25 | 3 |
| Total No. Individuals: | 103 | 1 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 9.71 | 5 |
| Diptera Taxa: | 8 | 3 |
| % Intolerant (0-3): | .97 | 1 |
| % Tolerant (8-10): | 1.94 | 5 |
| % Predators FFG 1: | 32.04 | 3 |
| % Shredders + Scrapers FFG 1: | 31.07 | 5 |
| % Collector-Filterers FFG 1: | 9.71 | 5 |
| % Sprawlers: | .97 | 1 |
| **mIBI Metric Score:** | | **38** |

**Supplemental Metrics**

| | |
|---|---|
| HBI | 5.97 |
| Shannon-Weaver Index | 4.02 |
| Shannon Equitability | .43 |
| % Dominant 3 Taxon | 39.81 |
| % Chironomidae | 38.83 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11740 | 130722401 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0036 | 13T-022 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Smith Ditch / 113th Avenue | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .4 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☑ Commercial
☐ Agricultural ☐ Industrial

**Other**

☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None **Other**

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells **Other** Silt

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ **Are the undersides of stones, which are not deeply embedded, black?**

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 10 | 90 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| | 100 | | |

## Water Quality

**Water Odors**

☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**

☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**

☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**

☐ Clear ☑ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

**Other**

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0036 | 13T-022 | MHAB | AB11740 | 130722401 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Smith Ditch | 113th Avenue | 040400010502 | 04040001030040 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4584638.96 | 472176.36 | 54 | 9.559 | 2.962 | 24 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 2252 (Physella) | 2 | | 8 |
| 9050 (Hyalella) | 14 | | |
| 8996 (Orconectes) | 1 | | 4 |
| 3081 (Callibaetis) | 2 | | 6 |
| 3189 (Caenis punctata) | 2 | 0108.2, 0108.3 | |
| 3228 (Anax junius) | 2 | | |
| 3540 (Ischnura) | 5 | | 9 |
| 7031 (Ischnura verticalis) | 12 | | |
| 3542 (Ischnura posita) | 2 | | |
| 1041 (CORIXIDAE) | 3 | | 5 |
| 7183 (Palmacorixa) | 1 | | 5 |
| 7224 (Notonecta) | 5 | | |
| 7207 (Belostoma) | 6 | | |
| 7216 (Ranatra) | 1 | | |
| 7220 (Ranatra nigra) | 1 | | 4 |
| 7096 (Gerris) | 1 | | |
| 7122 (Microvelia) | 1 | | |
| 7145 (Mesovelia mulsanti) | 1 | | |
| 3591 (Haliplus borealis) | 1 | 1A | 5 |
| 3600 (Peltodytes duodecimpunctatus) | 9 | 9A | |
| 3602 (Peltodytes muticus) | 5 | 5A | |
| 3605 (Peltodytes edentulus) | 5 | 5A | 6 |
| 3785 (Liodessus affinis) | 1 | 1A | 6 |
| 3872 (Tropisternus) | 1 | 1L | |
| 3946 (Cyphon) | 8 | 8L | |
| 7299 (Dubiraphia quadrinotata) | 3 | 3A; 0108.1 | 3 |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 27 | 3 |
| Total No. Individuals: | 96 | 1 |
| EPT Taxa: | 2 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 17.71 | 5 |
| Diptera Taxa: | 0 | 1 |
| % Intolerant (0-3): | 3.13 | 1 |
| % Tolerant (8-10): | 7.29 | 5 |
| % Predators FFG 1: | 44.79 | 5 |
| % Shredders + Scrapers FFG 1: | 16.67 | 3 |
| % Collector-Filterers FFG 1: | 0 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **38** |

**Supplemental Metrics**

| | |
|---|---|
| HBI | 6.04 |
| Shannon-Weaver Index | 4.19 |
| Shannon Equitability | .45 |
| % Dominant 3 Taxon | 36.46 |
| % Chironomidae | 0 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11748 | 130723408 | ☐ Black Light | ☐ Kick | 1 |
| Site Name | EPA ID | ☐ Qualitative | ☐ CPOM | |
| LMG-05-0025 | 13T-030 | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Turbidity taken with Hach.

| Stream Name / Location | County | Sample Date |
|---|---|---|
| Johnson Ditch / Oak Ridge Prairie County Park | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| Erosion | NPS Pollution |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| Riffle | Run | Pool |
| | .2 | .5 |

| Distances | |
|---|---|
| Riffle-Riffle | Bend-Bend |
| | |

**Predominant Surrounding Land Use**
☐ Forest ☑ Residential
☑ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 5 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| Bedrock | Boulder (>10in) | Cobble (2.5-10in) | Gravel (0.1-2.5in) | Sand (gritty) | Silt | Clay (slick) |
| | | | | 70 | 30 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| Detritus (sticks, woods) | Detritus (CPOM) | Muck/Mud (black, fine FPOM) | Marl (gray w/shell fragments) |
| 30 | 30 | 40 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid ☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0025 | 13T-030 | MHAB | AB11748 | 130723408 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Johnson Ditch | Oak Ridge Prairie County Park | 040400010503 | 04040001030010 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4596263.26 | 466963.84 | 54 | 3.986 | 2.131 | 35 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 2272 (Planorbella) | 1 | | |
| 9036 (Caecidotea) | 1 | | 8 |
| 9050 (Hyalella) | 25 | | |
| 3048 (Stenacron) | 1 | | 3 |
| 3183 (Caenis) | 11 | | 3 |
| 3189 (Caenis punctata) | 19 | 0110.1 | |
| 3259 (Pachydiplax longipennis) | 2 | | |
| 3540 (Ischnura) | 3 | | 9 |
| 7031 (Ischnura verticalis) | 3 | | |
| 3542 (Ischnura posita) | 9 | | |
| 1041 (CORIXIDAE) | 1 | imm | 5 |
| 7203 (Trichocorixa sexcincta) | 3 | 2M,1F | 4 |
| 7184 (Palmacorixa buenoi) | 3 | 1M,2F | 4 |
| 7225 (Notonecta irrorata) | 1 | | |
| 7226 (Notonecta lunata) | 2 | | |
| 1039 (BELOSTOMATIDAE) | 1 | imm | |
| 7208 (Belostoma flumineum) | 1 | | 4 |
| 7219 (Ranatra kirkaldyi) | 4 | | |
| 7123 (Microvelia americana) | 1 | 1F | |
| 7144 (Mesovelia) | 1 | | |
| 3600 (Peltodytes duodecimpunctatus) | 2 | 2A | |
| 3602 (Peltodytes muticus) | 2 | 2A | |
| 3946 (Cyphon) | 1 | 1L | |
| 7296 (Dubiraphia) | 1 | 1L | 5 |
| 7300 (Dubiraphia vittata) | 2 | 2M; 0110.2 | |
| 3773 (Sialis) | 4 | | 5 |
| 8926 (Oecetis) | 1 | | 3 |
| 7929 (Clinotanypus pinguis) | 1 | | 8 |
| 7973 (Pentaneura) | 1 | | 6 |
| 7984 (Procladius) | 3 | | 7 |
| 9284 (Tribelos jucundus) | 4 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 1 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 32 | 3 |
| Total No. Individuals: | 116 | 1 |
| EPT Taxa: | 4 | 5 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 23.28 | 3 |
| Diptera Taxa: | 5 | 1 |
| % Intolerant (0-3): | 11.21 | 1 |
| % Tolerant (8-10): | 4.31 | 5 |
| % Predators FFG 1: | 34.48 | 3 |
| % Shredders + Scrapers FFG 1: | 1.72 | 1 |
| % Collector-Filterers FFG 1: | 0 | 5 |
| % Sprawlers: | 2.59 | 1 |
| **mIBI Metric Score:** | | **34** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 4.77 |
| Shannon-Weaver Index | 4.09 |
| Shannon Equitability | .44 |
| % Dominant 3 Taxon | 47.41 |
| % Chironomidae | 8.62 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11745 | 130723105 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0022 | 13T-027 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Main Beaver Dam Ditch / Blaine Street | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .4 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☑ Field/Pasture ☐ Commercial
☑ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 6 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☑ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | | 100 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| | | 100 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☑ Sheen ☐ None ☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☑ Turbid ☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0022 | 13T-027 | MHAB | AB11745 | 130723105 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Main Beaver Dam Ditch | Blaine Street | 040400010501 | 04040001030030 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4588602.68 | 464376.13 | 54 | 2.899 | 2.347 | 25 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1449 (Q. multisetosus) | 1 | | 10 |
| 1234 (GLOSSIPHONIIDAE) | 4 | | |
| 1206 (PLANORBIDAE) | 2 | | 6 |
| 2272 (Planorbella) | 2 | | |
| 2252 (Physella) | 4 | | 8 |
| 2157 (Musculium) | 3 | | 6 |
| 9050 (Hyalella) | 16 | | |
| 1252 (PODURIDAE) | 1 | | |
| 3183 (Caenis) | 1 | | 3 |
| 3189 (Caenis punctata) | 2 | 0106.1 | |
| 1120 (ANISOPTERA) | 1 | | |
| 3228 (Anax junius) | 1 | | |
| 3540 (Ischnura) | 5 | | 9 |
| 7031 (Ischnura verticalis) | 3 | | |
| 3542 (Ischnura posita) | 3 | | |
| 7201 (Trichocorixa calva) | 1 | | 4 |
| 7224 (Notonecta) | 1 | | |
| 7226 (Notonecta lunata) | 2 | | |
| 7230 (Neoplea striola) | 1 | | |
| 7206 (Pelocoris femoratus) | 5 | | 4 |
| 1039 (BELOSTOMATIDAE) | 1 | | |
| 7129 (Microvelia pulchella) | 1 | | |
| 3591 (Haliplus borealis) | 1 | 1A | 5 |
| 3601 (Peltodytes lengi) | 1 | 1A | |
| 3602 (Peltodytes muticus) | 1 | 1A | |
| 3604 (Peltodytes sexmaculatus) | 4 | 4A | |
| 3605 (Peltodytes edentulus) | 4 | 4A | 6 |
| 3851 (Berosus peregrinus) | 1 | 1A | 6 |
| 3863 (Paracymus) | 1 | 1A | |
| 3872 (Tropisternus) | 5 | 5L | |
| 3884 (Enochrus ochraceus) | 1 | 1A | |
| 7849 (Culicoides) | 1 | | 10 |
| 7929 (Clinotanypus pinguis) | 1 | | 8 |
| 7926 (Tanypodinae (Subfamily)) | 2 | | |
| 9317 (Zavreliella marmorata) | 2 | | |
| 8097 (Cladopelma) | 1 | | 9 |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 36 | 3 |
| Total No. Individuals: | 87 | 1 |
| EPT Taxa: | 2 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 33.33 | 3 |
| % Non-insects excluding Astacidae: | 36.78 | 1 |
| Diptera Taxa: | 5 | 1 |
| % Intolerant (0-3): | 1.15 | 1 |
| % Tolerant (8-10): | 14.94 | 3 |
| % Predators FFG 1: | 34.48 | 3 |
| % Shredders + Scrapers FFG 1: | 13.79 | 3 |
| % Collector-Filterers FFG 1: | 3.45 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **28** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.65 |
| Shannon-Weaver Index | 4.64 |
| Shannon Equitability | .5 |
| % Dominant 3 Taxon | 29.89 |
| % Chironomidae | 6.9 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11754 | 130723104 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0031 | 13T-036 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Turkey Creek / Liverpool Road | Lake | 07/23/2013 |

☑ ***Habitat Complete*** ☐ ***Sample Quality Rejected***

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .5 | .7 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☑ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 10 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 30 | 70 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 60 | 20 | 20 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid ☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0031 | 13T-036 | MHAB | AB11754 | 130723104 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Turkey Creek | Liverpool Road | 040400010505 | 04040001030020 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4595643.39 | 474386.98 | 54 | 1.44 | 37.922 | 43 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 1 | | 4 |
| 1086 (OLIGOCHAETA) | 1 | | 8 |
| 1234 (GLOSSIPHONIIDAE) | 1 | | |
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 2252 (Physella) | 1 | | 8 |
| 9050 (Hyalella) | 21 | | |
| 9056 (Crangonyx) | 1 | | 6 |
| 3183 (Caenis) | 3 | | 3 |
| 3189 (Caenis punctata) | 3 | 0124.1 | |
| 3227 (Anax) | 1 | | |
| 7046 (Epitheca princeps) | 1 | | |
| 1026 (COENAGRIONIDAE) | 2 | | 9 |
| 7031 (Ischnura verticalis) | 2 | | |
| 3542 (Ischnura posita) | 1 | | |
| 1041 (CORIXIDAE) | 2 | | 5 |
| 7201 (Trichocorixa calva) | 5 | | 4 |
| 7184 (Palmacorixa buenoi) | 21 | | 4 |
| 7117 (Trepobates) | 4 | | |
| 7121 (Trepobates subnitidus) | 1 | | |
| 7122 (Microvelia) | 1 | | |
| 7123 (Microvelia americana) | 2 | | |
| 3600 (Peltodytes duodecimpunctatus) | 2 | 2A | |
| 3687 (Laccophilus proximus) | 1 | 1A | |
| 3946 (Cyphon) | 4 | 4L | |
| 7300 (Dubiraphia vittata) | 10 | 10A, 0124.2 | |
| 7295 (Ancyronyx variegatus) | 7 | 7A | 4 |
| 7321 (Macronychus glabratus) | 2 | 2A | 3 |
| 3773 (Sialis) | 1 | | 5 |
| 7732 (Anopheles) | 1 | | |
| 7849 (Culicoides) | 1 | | 10 |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 9284 (Tribelos jucundus) | 3 | | |
| 8112 (Dicrotendipes) | 1 | | 6 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 2 | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 34 | 3 |
| Total No. Individuals: | 112 | 1 |
| EPT Taxa: | 2 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 24.11 | 3 |
| Diptera Taxa: | 6 | 1 |
| % Intolerant (0-3): | 4.46 | 1 |
| % Tolerant (8-10): | 4.46 | 5 |
| % Predators FFG 1: | 20.54 | 3 |
| % Shredders + Scrapers FFG 1: | 4.46 | 1 |
| % Collector-Filterers FFG 1: | .89 | 5 |
| % Sprawlers: | .89 | 1 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 4.53 |
| Shannon-Weaver Index | 4.19 |
| Shannon Equitability | .45 |
| % Dominant 3 Taxon | 46.43 |
| % Chironomidae | 6.25 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11727 | 130723102 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0009 | 13T-009 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Duck Creek / Front Street | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .4 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 5 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 30 | 70 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 60 | 20 | 20 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0009 | 13T-009 | MHAB | AB11727 | 130723102 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Duck Creek | Front Street | 040400010506 | 04040001040010 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4598169.45 | 478813.26 | 54 | 1.302 | 15.822 | 31 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 7 | | 4 |
| 1449 (Q. multisetosus) | 1 | | 10 |
| 1234 (GLOSSIPHONIIDAE) | 3 | | |
| 9036 (Caecidotea) | 6 | | 8 |
| 9050 (Hyalella) | 13 | | |
| 9056 (Crangonyx) | 4 | | 6 |
| 8996 (Orconectes) | 2 | 1M, 1F | 4 |
| 3049 (Stenacron interpunctatum) | 3 | | 7 |
| 3183 (Caenis) | 2 | | 3 |
| 3189 (Caenis punctata) | 4 | | |
| 3245 (Boyeria vinosa) | 1 | | 4 |
| 7031 (Ischnura verticalis) | 2 | | |
| 3542 (Ischnura posita) | 1 | | |
| 1041 (CORIXIDAE) | 7 | | 5 |
| 7201 (Trichocorixa calva) | 16 | 12M, 4F | 4 |
| 7184 (Palmacorixa buenoi) | 1 | 1M | 4 |
| 7111 (Rheumatobates) | 1 | | |
| 7117 (Trepobates) | 1 | | |
| 7300 (Dubiraphia vittata) | 3 | 0115.1, 0115.2; 2M, 1F | |
| 8984 (Bezzia/Palpomyia) | 1 | | |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 9284 (Tribelos jucundus) | 1 | | |
| 8099 (Cryptochironomus) | 1 | | 5 |
| 8168 (Paratendipes albimanus) | 2 | | 4 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 1 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 25 | 3 |
| Total No. Individuals: | 85 | 1 |
| EPT Taxa: | 3 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 40 | 1 |
| Diptera Taxa: | 6 | 1 |
| % Intolerant (0-3): | 2.35 | 1 |
| % Tolerant (8-10): | 8.24 | 5 |
| % Predators FFG 1: | 38.82 | 5 |
| % Shredders + Scrapers FFG 1: | 0 | 1 |
| % Collector-Filterers FFG 1: | 0 | 5 |
| % Sprawlers: | 1.18 | 1 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5 |
| Shannon-Weaver Index | 4 |
| Shannon Equitability | .43 |
| % Dominant 3 Taxon | 42.35 |
| % Chironomidae | 7.06 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11726 | 130723101 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | ☐ Qualitative | ☐ CPOM | |
| LMG030-0008 | 13T-008 | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Oakton pH meter probe was not in KCl solution. believe it may not be reading right. meter would not calibrate in field. Did not recognize pH 10.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Deep River / Ridge Rd, D/S of Lake George Dam, Hobart | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .5 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**
☐ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other: PARK
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 20 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other:

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other:

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse ☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 40 | 60 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 90 | 10 | | |

## Water Quality

**Water Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils:** ☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type:** ☑ Warm ☐ Cold

**Barometer:**

**Turbidity (Estimated):** ☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

**Salinity:**

**ORP:**

Other:

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG030-0008 | 13T-008 | MHAB | AB11726 | 130723101 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Deep River | Ridge Rd, D/S of Lake George Dam, Hobart | 040400010507 | 04040001030060 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4598225.83 | 478609.71 | 54 | 1.38 | 124.048 | 33 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 3 | | 4 |
| 1444 (Potamothrix moldaviensis) | 1 | | 8 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 4 | | |
| 1234 (GLOSSIPHONIIDAE) | 2 | | |
| 1233 (ERPOBDELLIDAE) | 2 | | |
| 2202 (Valvata bicarinata) | 1 | | |
| 1088 (Gyraulus) | 1 | | 8 |
| 1083 (ACARI) | 3 | | 4 |
| 9036 (Caecidotea) | 2 | | 8 |
| 9050 (Hyalella) | 17 | | |
| 3081 (Callibaetis) | 1 | | 6 |
| 3183 (Caenis) | 7 | | 3 |
| 3188 (Caenis latipennis) | 10 | | |
| 3189 (Caenis punctata) | 1 | | |
| 7031 (Ischnura verticalis) | 3 | | |
| 3560 (Enallagma basidens) | 1 | | |
| 1041 (CORIXIDAE) | 11 | | 5 |
| 7201 (Trichocorixa calva) | 2 | | 4 |
| 7184 (Palmacorixa buenoi) | 28 | 10M, 18F | 4 |
| 7220 (Ranatra nigra) | 1 | | 4 |
| 7111 (Rheumatobates) | 2 | | |
| 3877 (Tropisternus glaber) | 1 | | |
| 7300 (Dubiraphia vittata) | 2 | | |
| 7295 (Ancyronyx variegatus) | 1 | | 4 |
| 8926 (Oecetis) | 1 | | 3 |
| 8984 (Bezzia/Palpomyia) | 2 | | |
| 7984 (Procladius) | 1 | | 7 |
| 9246 (Ablabesmyia (Ablabesmyia)) | 2 | | |
| 8047 (Nanocladius) | 1 | | 5 |
| 8099 (Cryptochironomus) | 2 | | 5 |
| 8112 (Dicrotendipes) | 2 | | 6 |
| 8126 (Glyptotendipes) | 56 | 1P | 6 |
| 8241 (Tanytarsus) | 1 | | 4 |
| 9204 (Phaenopsectra/Tribelos) | 2 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 2 | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 35 | 3 |
| Total No. Individuals: | 179 | 3 |
| EPT Taxa: | 5 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 2.9 | 5 |
| % Non-insects excluding Astacidae: | 20.11 | 3 |
| Diptera Taxa: | 10 | 3 |
| % Intolerant (0-3): | 4.47 | 1 |
| % Tolerant (8-10): | 2.23 | 5 |
| % Predators FFG 1: | 15.64 | 1 |
| % Shredders + Scrapers FFG 1: | .56 | 1 |
| % Collector-Filterers FFG 1: | 31.84 | 1 |
| % Sprawlers: | 2.23 | 1 |
| **mIBI Metric Score:** | | **28** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.14 |
| Shannon-Weaver Index | 3.76 |
| Shannon Equitability | .4 |
| % Dominant 3 Taxon | 56.42 |
| % Chironomidae | 38.55 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11721 | 130722102 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0003 | 13T-002 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Willow Creek / Clem Road | Porter | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| .1 | .3 | .4 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 10 | 80 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 80 | 20 | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☐ Warm ☑ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0003 | 13T-002 | MHAB | AB11721 | 130722102 | 7/22/13 | Porter |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Willow Creek | Clem Road | 040400010509 | 04040001040030 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4604085.98 | 482961.88 | 54 | 16.774 | 8.556 | 48 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1444 (Potamothrix moldaviensis) | 1 | | 8 |
| 1083 (ACARI) | 1 | | 4 |
| 9036 (Caecidotea) | 27 | | 8 |
| 9068 (Gammarus) | 19 | | 6 |
| 3379 (Pseudocloeon) | 4 | | 2 |
| 7123 (Microvelia americana) | 2 | | |
| 3432 (Cheumatopsyche) | 1 | | 3 |
| 3423 (Hydropsyche) | 3 | | 4 |
| 8980 (Hydropsyche betteni grp) | 6 | | |
| 7814 (Simulium) | 1 | | 5 |
| 9100 (Tvetenia) | 1 | | 5 |
| 8211 (Stictochironomus) | 35 | | 4 |
| 9238 (Polypedilum (Uresipedilum) flavum) | 1 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 13 | 1 |
| Total No. Individuals: | 102 | 1 |
| EPT Taxa: | 4 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 2.7 | 5 |
| % Non-insects excluding Astacidae: | 47.06 | 1 |
| Diptera Taxa: | 4 | 1 |
| % Intolerant (0-3): | 4.9 | 1 |
| % Tolerant (8-10): | 27.45 | 1 |
| % Predators FFG 1: | 0 | 1 |
| % Shredders + Scrapers FFG 1: | 3.92 | 1 |
| % Collector-Filterers FFG 1: | 4.9 | 5 |
| % Sprawlers: | .98 | 1 |
| **mIBI Metric Score:** | | **22** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.54 |
| Shannon-Weaver Index | 2.57 |
| Shannon Equitability | .27 |
| % Dominant 3 Taxon | 79.41 |
| % Chironomidae | 36.27 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11722 | 130722104 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0004 | 13T-003 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Willow Creek / Stone Avenue | Porter | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .2 | .3 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| 2 | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial

**Other**

☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None **Other**

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells **Other**

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ **Are the undersides of stones, which are not deeply embedded, black?**

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 80 | 20 | | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 100 | | | |

## Water Quality

**Water Odors**

☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**

☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**

☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**

☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

**Other**

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0004 | 13T-003 | MHAB | AB11722 | 130722104 | 7/22/13 | Porter |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Willow Creek | Stone Avenue | 040400010509 | 04040001040030 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4601489.49 | 484236.7 | 54 | 3.917 | 5.35 | 40 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 9036 (Caecidotea) | 13 | | 8 |
| 9068 (Gammarus) | 8 | | 6 |
| 9050 (Hyalella) | 7 | | |
| 3230 (Aeshna umbrosa) | 1 | | |
| 3245 (Boyeria vinosa) | 3 | | 4 |
| 7026 (Calopteryx maculata) | 1 | | |
| 7031 (Ischnura verticalis) | 3 | | |
| 7230 (Neoplea striola) | 1 | | |
| 7122 (Microvelia) | 2 | | |
| 7123 (Microvelia americana) | 3 | | |
| 3600 (Peltodytes duodecimpunctatus) | 1 | | |
| 7299 (Dubiraphia quadrinotata) | 6 | 0112.1 | 3 |
| 7298 (Dubiraphia minima) | 3 | minima grp | |
| 7295 (Ancyronyx variegatus) | 1 | | 4 |
| 3432 (Cheumatopsyche) | 1 | | 3 |
| 7814 (Simulium) | 1 | | 5 |
| 9094 (Paramerina) | 1 | | |
| 8083 (Chironomini (Tribe)) | 2 | | |
| 8011 (Brillia flavifrons) | 1 | | |
| 8162 (Paracladopelma) | 1 | | 7 |
| 8211 (Stictochironomus) | 3 | | 4 |
| 8235 (Paratanytarsus) | 1 | | 4 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 9 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 23 | 3 |
| Total No. Individuals: | 73 | 1 |
| EPT Taxa: | 1 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 11.11 | 5 |
| % Non-insects excluding Astacidae: | 38.36 | 1 |
| Diptera Taxa: | 8 | 3 |
| % Intolerant (0-3): | 9.59 | 1 |
| % Tolerant (8-10): | 17.81 | 3 |
| % Predators FFG 1: | 13.7 | 1 |
| % Shredders + Scrapers FFG 1: | 1.37 | 1 |
| % Collector-Filterers FFG 1: | 2.74 | 5 |
| % Sprawlers: | 1.37 | 1 |
| **mIBI Metric Score:** | | **26** |

**Supplemental Metrics**

| | |
|---|---|
| HBI | 5.71 |
| Shannon-Weaver Index | 3.95 |
| Shannon Equitability | .42 |
| % Dominant 3 Taxon | 41.1 |
| % Chironomidae | 24.66 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11724 | 130722107 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0007 | 13T-006 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Deep River / Liverpool Road | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .7 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 30 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 40 | 60 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 50 | 20 | 30 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0007 | 13T-006 | MHAB | AB11724 | 130722107 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Deep River | Liverpool Road | 040400010508 | 04040001040020 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4601279.69 | 475754.09 | 54 | 1.388 | 150.171 | 44 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 1 | | 4 |
| 1498 (Nais) | 1 | | 8 |
| 1234 (GLOSSIPHONIIDAE) | 2 | | |
| 1083 (ACARI) | 2 | | 4 |
| 9036 (Caecidotea) | 2 | | 8 |
| 9050 (Hyalella) | 65 | | |
| 3183 (Caenis) | 10 | | 3 |
| 3188 (Caenis latipennis) | 8 | | |
| 3189 (Caenis punctata) | 7 | | |
| 3277 (Perithemis tenera) | 4 | | |
| 1026 (COENAGRIONIDAE) | 2 | | 9 |
| 7031 (Ischnura verticalis) | 6 | | |
| 3542 (Ischnura posita) | 6 | | |
| 3560 (Enallagma basidens) | 1 | | |
| 7184 (Palmacorixa buenoi) | 1 | 1M | 4 |
| 7224 (Notonecta) | 1 | imm | |
| 7111 (Rheumatobates) | 1 | | |
| 7121 (Trepobates subnitidus) | 1 | | |
| 3589 (Haliplus pantherinus) | 1 | | 6 |
| 3605 (Peltodytes edentulus) | 1 | | 6 |
| 3872 (Tropisternus) | 2 | 2L | |
| 3946 (Cyphon) | 1 | 1L | |
| 7298 (Dubiraphia minima) | 1 | 0114.1 | |
| 8809 (Ochrotrichia) | 1 | | 2 |
| 7984 (Procladius) | 1 | | 7 |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 9243 (Ablabesmyia (Karelia)) | 1 | | |
| 8104 (Cryptotendipes) | 1 | | 4 |
| 8123 (Endochironomus) | 5 | | 6 |
| 8126 (Glyptotendipes) | 1 | | 6 |
| 9278 (Polypedilum (Tripodura) halterale-simulans grp) | 1 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 2 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 32 | 3 |
| Total No. Individuals: | 141 | 3 |
| EPT Taxa: | 4 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 51.77 | 1 |
| Diptera Taxa: | 8 | 3 |
| % Intolerant (0-3): | 7.8 | 1 |
| % Tolerant (8-10): | 3.55 | 5 |
| % Predators FFG 1: | 16.31 | 1 |
| % Shredders + Scrapers FFG 1: | 5.67 | 1 |
| % Collector-Filterers FFG 1: | .71 | 5 |
| % Sprawlers: | .71 | 1 |
| **mIBI Metric Score:** | | **30** |

**Supplemental Metrics**

| | |
|---|---|
| HBI | 4.97 |
| Shannon-Weaver Index | 3.37 |
| Shannon Equitability | .36 |
| % Dominant 3 Taxon | 58.87 |
| % Chironomidae | 9.22 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11741 | 130722402 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0018 | 13T-023 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

NOTES

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Main Beaver Dam Ditch / Grant Street | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| .1 | .4 | .8 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 7 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | 10 | | 70 | 20 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 100 | | | |

## Water Quality

**Water Odors**
☐ Normal ☐ Petroleum ☐ None
☑ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0018 | 13T-023 | MHAB | AB11741 | 130722402 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Main Beaver Dam Ditch | Grant Street | 040400010502 | 04040001030040 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4587170.23 | 470364.27 | 54 | 2.607 | 19.073 | 52 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 15 | | 4 |
| 1498 (Nais) | 2 | | 8 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 13 | | |
| 1553 (Tubificidae with pectinate chetae and hair chetae) | 2 | | |
| 1233 (ERPOBDELLIDAE) | 3 | | |
| 1206 (PLANORBIDAE) | 2 | | 6 |
| 1088 (Gyraulus) | 1 | | 8 |
| 2252 (Physella) | 2 | | 8 |
| 1092 (PISIDIIDAE) | 2 | | 8 |
| 2161 (Musculium transversum) | 3 | | 6 |
| 9036 (Caecidotea) | 2 | | 8 |
| 9056 (Crangonyx) | 2 | | 6 |
| 9019 (Cambarus) | 1 | 1F | 2 |
| 3600 (Peltodytes duodecimpunctatus) | 1 | 1A | |
| 3946 (Cyphon) | 1 | 1L | |
| 3432 (Cheumatopsyche) | 1 | | 3 |
| 7814 (Simulium) | 35 | | 5 |
| 8082 (Chironominae (Subfamily)) | 1 | | |
| 8126 (Glyptotendipes) | 1 | | 6 |
| 8238 (Rheotanytarsus) | 19 | | 3 |
| 9277 (Polypedilum (Tripodura) scalaenum grp) | 1 | | |
| 9238 (Polypedilum (Uresipedilum) flavum) | 38 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 3 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 23 | 3 |
| Total No. Individuals: | 151 | 3 |
| EPT Taxa: | 1 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 30.16 | 3 |
| % Non-insects excluding Astacidae: | 32.45 | 3 |
| Diptera Taxa: | 7 | 3 |
| % Intolerant (0-3): | 13.91 | 1 |
| % Tolerant (8-10): | 5.96 | 5 |
| % Predators FFG 1: | 1.99 | 1 |
| % Shredders + Scrapers FFG 1: | 3.97 | 1 |
| % Collector-Filterers FFG 1: | 40.4 | 1 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **26** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 4.74 |
| Shannon-Weaver Index | 3.3 |
| Shannon Equitability | .35 |
| % Dominant 3 Taxon | 60.93 |
| % Chironomidae | 41.72 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11753 | 130722405 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0030 | 13T-035 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Turbidity taken with Hach = 8.05.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Turkey Creek / 73rd Avenue | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| .1 | .2 | .4 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**
☐ Forest ☑ Residential
☐ Field/Pasture ☑ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | 20 | 30 | 40 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 100 | | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0030 | 13T-035 | MHAB | AB11753 | 130722405 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Turkey Creek | 73rd Avenue | 040400010505 | 04040001030020 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4592706.56 | 471584.5 | 54 | 17.016 | 3.973 | 52 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 1206 (PLANORBIDAE) | 1 | | 6 |
| 2252 (Physella) | 7 | | 8 |
| 2181 (Sphaerium) | 8 | | 6 |
| 2162 (Pisidium) | 1 | | 6 |
| 1083 (ACARI) | 1 | | 4 |
| 9036 (Caecidotea) | 13 | | 8 |
| 9050 (Hyalella) | 1 | | |
| 8996 (Orconectes) | 2 | 1M,1F | 4 |
| 1017 (HEPTAGENIIDAE) | 1 | | 4 |
| 3071 (Baetis flavistriga) | 1 | | 3 |
| 3227 (Anax) | 1 | | |
| 7031 (Ischnura verticalis) | 1 | | |
| 3572 (Argia tibialis) | 2 | | |
| 7307 (Stenelmis) | 10 | 10L | 5 |
| 7309 (Stenelmis crenata) | 15 | 15A; 0123.2 | 5 |
| 7299 (Dubiraphia quadrinotata) | 4 | 4A; 123.3 | 3 |
| 7300 (Dubiraphia vittata) | 1 | 1A; 0123.1 | |
| 3432 (Cheumatopsyche) | 13 | | 3 |
| 7814 (Simulium) | 4 | | 5 |
| 7926 (Tanypodinae (Subfamily)) | 2 | | |
| 8211 (Stictochironomus) | 11 | | 4 |
| 8238 (Rheotanytarsus) | 1 | | 3 |
| 8241 (Tanytarsus) | 1 | | 4 |
| 9238 (Polypedilum (Uresipedilum) flavum) | 3 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 25 | 3 |
| Total No. Individuals: | 106 | 1 |
| EPT Taxa: | 3 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 11.11 | 5 |
| % Non-insects excluding Astacidae: | 31.13 | 3 |
| Diptera Taxa: | 6 | 1 |
| % Intolerant (0-3): | 17.92 | 3 |
| % Tolerant (8-10): | 18.87 | 3 |
| % Predators FFG 1: | 6.6 | 1 |
| % Shredders + Scrapers FFG 1: | 31.13 | 5 |
| % Collector-Filterers FFG 1: | 26.42 | 1 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.17 |
| Shannon-Weaver Index | 3.93 |
| Shannon Equitability | .42 |
| % Dominant 3 Taxon | 38.68 |
| % Chironomidae | 16.98 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11749 | 130723407 | ☐ Black Light | ☐ Kick | 1 |
| Site Name | EPA ID | | | |
| LMG-05-0026 | 13T-031 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Turbidity with Hach = 30.4.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Turkey Creek / W Old Lincoln Hwy | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| Erosion | NPS Pollution |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| Riffle | Run | Pool |
| | .1 | .4 |

| Distances | |
|---|---|
| Riffle-Riffle | Bend-Bend |
| | |

**Predominant Surrounding Land Use**
☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 2 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other
**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other
**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse
☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| Bedrock | Boulder (>10in) | Cobble (2.5-10in) | Gravel (0.1-2.5in) | Sand (gritty) | Silt | Clay (slick) |
| | | | 60 | 30 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| Detritus (sticks, woods) | Detritus (CPOM) | Muck/Mud (black, fine FPOM) | Marl (gray w/shell fragments) |
| 100 | | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0026 | 13T-031 | MHAB | AB11749 | 130723407 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Turkey Creek | W Old Lincoln Hwy | 040400010503 | 04040001030010 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4592792.99 | 467159.32 | 54 | 14.199 | 2.642 | 42 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1421 (Aulodrilus pigueti) | 1 | | 7 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 2 | | |
| 2208 (Valvata tricarinata) | 4 | | 8 |
| 2252 (Physella) | 1 | | 8 |
| 1092 (PISIDIIDAE) | 3 | | 8 |
| 2162 (Pisidium) | 7 | | 6 |
| 2161 (Musculium transversum) | 18 | | 6 |
| 9050 (Hyalella) | 23 | | |
| 9056 (Crangonyx) | 7 | | 6 |
| 8996 (Orconectes) | 3 | 2M,1F | 4 |
| 3560 (Enallagma basidens) | 1 | | |
| 7111 (Rheumatobates) | 2 | imm | |
| 9290 (Gerridae (Gerrinae)) | 1 | imm | |
| 3591 (Haliplus borealis) | 1 | 1A | 5 |
| 3600 (Peltodytes duodecimpunctatus) | 1 | 1A | |
| 3863 (Paracymus) | 1 | 1A | |
| 3946 (Cyphon) | 2 | 2L | |
| 7307 (Stenelmis) | 1 | 1F | 5 |
| 7296 (Dubiraphia) | 4 | 4L | 5 |
| 7299 (Dubiraphia quadrinotata) | 40 | 0127.1,0127.2 | 3 |
| 7300 (Dubiraphia vittata) | 12 | 0127.3,0127.4 | |
| 3432 (Cheumatopsyche) | 1 | | 3 |
| 8926 (Oecetis) | 1 | | 3 |
| 8083 (Chironomini (Tribe)) | 2 | | |
| 8099 (Cryptochironomus) | 1 | | 5 |
| 8104 (Cryptotendipes) | 2 | | 4 |
| 8241 (Tanytarsus) | 1 | | 4 |
| 9278 (Polypedilum (Tripodura) halterale-simulans grp) | 6 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 28 | 3 |
| Total No. Individuals: | 149 | 3 |
| EPT Taxa: | 2 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 8.33 | 5 |
| % Non-insects excluding Astacidae: | 44.3 | 1 |
| Diptera Taxa: | 5 | 1 |
| % Intolerant (0-3): | 28.19 | 3 |
| % Tolerant (8-10): | 5.37 | 5 |
| % Predators FFG 1: | 3.36 | 1 |
| % Shredders + Scrapers FFG 1: | 6.04 | 1 |
| % Collector-Filterers FFG 1: | 20.13 | 1 |
| % Sprawlers: | .67 | 1 |
| **mIBI Metric Score:** | | **28** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 4.67 |
| Shannon-Weaver Index | 3.69 |
| Shannon Equitability | .39 |
| % Dominant 3 Taxon | 54.36 |
| % Chironomidae | 8.05 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11747 | 130724410 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0024 | 13T-029 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Turkey Creek / Broad Street | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| .1 | .1 | .2 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☑ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 50 | 40 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 100 | | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils**
☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Slightly Turbid ☐ Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0024 | 13T-029 | MHAB | AB11747 | 130724410 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Turkey Creek | Broad Street | 040400010503 | 04040001030010 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4594131.53 | 464313.06 | 54 | 6.888 | 5.543 | 42 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 3 | | 4 |
| 1556 (NAIDIDAE w/bifid chetae + hair chetae) | 1 | | |
| 1234 (GLOSSIPHONIIDAE) | 1 | | |
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 1204 (GASTROPODA) | 1 | | 7 |
| 2252 (Physella) | 11 | | 8 |
| 2185 (Sphaerium striatinum) | 14 | | 6 |
| 9036 (Caecidotea) | 35 | | 8 |
| 9050 (Hyalella) | 5 | | |
| 9056 (Crangonyx) | 2 | | 6 |
| 8996 (Orconectes) | 1 | 1MII | 4 |
| 1026 (COENAGRIONIDAE) | 1 | | 9 |
| 7031 (Ischnura verticalis) | 1 | | |
| 7225 (Notonecta irrorata) | 1 | | |
| 7208 (Belostoma flumineum) | 1 | | 4 |
| 7111 (Rheumatobates) | 1 | | |
| 7123 (Microvelia americana) | 3 | | |
| 9290 (Gerridae (Gerrinae)) | 1 | | |
| 3591 (Haliplus borealis) | 1 | 1A | 5 |
| 3600 (Peltodytes duodecimpunctatus) | 4 | 4A | |
| 3851 (Berosus peregrinus) | 3 | 3A | 6 |
| 3861 (Anacaena) | 1 | 1A | |
| 3946 (Cyphon) | 6 | 6L | |
| 7299 (Dubiraphia quadrinotata) | 20 | 9M,11F;0119.1=442um, 0119.2=425um | 3 |
| 7300 (Dubiraphia vittata) | 5 | 3m,2F;0119.3=270UM | |
| 1057 (HYDROPSYCHIDAE) | 1 | | 4 |
| 3432 (Cheumatopsyche) | 6 | | 3 |
| 8211 (Stictochironomus) | 1 | | 4 |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 28 | 3 |
| Total No. Individuals: | 132 | 3 |
| EPT Taxa: | 2 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 56.06 | 1 |
| Diptera Taxa: | 1 | 1 |
| % Intolerant (0-3): | 19.7 | 3 |
| % Tolerant (8-10): | 35.61 | 1 |
| % Predators FFG 1: | 4.55 | 1 |
| % Shredders + Scrapers FFG 1: | 16.67 | 3 |
| % Collector-Filterers FFG 1: | 15.91 | 3 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **26** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.03 |
| Shannon-Weaver Index | 3.74 |
| Shannon Equitability | .4 |
| % Dominant 3 Taxon | 52.27 |
| % Chironomidae | .76 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11750 | 130723403 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0027 | 13T-032 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

NOTES

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Turkey Creek / SR 55 | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | 1 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial

Other

☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 5 | | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other Silt

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 50 | 50 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 80 | | 20 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid
☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0027 | 13T-032 | MHAB | AB11750 | 130723403 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Turkey Creek | SR 55 | 040400010503 | 04040001030020 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4594178.93 | 469555.17 | 54 | 2.388 | 21.179 | 41 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1206 (PLANORBIDAE) | 2 | | 6 |
| 2252 (Physella) | 22 | | 8 |
| 2157 (Musculium) | 1 | | 6 |
| 9050 (Hyalella) | 52 | | |
| 3183 (Caenis) | 2 | | 3 |
| 3189 (Caenis punctata) | 4 | 0116.1,0116.2 | |
| 1026 (COENAGRIONIDAE) | 7 | | 9 |
| 7031 (Ischnura verticalis) | 17 | | |
| 3551 (Enallagma exsulans) | 4 | | |
| 3560 (Enallagma basidens) | 1 | | |
| 7201 (Trichocorixa calva) | 3 | 2M,1F | 4 |
| 7122 (Microvelia) | 2 | | |
| 7123 (Microvelia americana) | 1 | | |
| 3600 (Peltodytes duodecimpunctatus) | 1 | 1A | |
| 9320 (Liodessus affinis Complex) | 2 | 2A | |
| 3851 (Berosus peregrinus) | 9 | 9A | 6 |
| 3863 (Paracymus) | 1 | 1A | |
| 3882 (Enochrus hamiltoni) | 1 | 1A | |
| 3946 (Cyphon) | 11 | 11L | |
| 7298 (Dubiraphia minima) | 6 | 6A,0116.3 | |
| 7321 (Macronychus glabratus) | 2 | 2L | 3 |
| 8927 (Oecetis avara) | 2 | | |
| 7929 (Clinotanypus pinguis) | 1 | | 8 |
| 9261 (Thienemannimyia grp.) | 1 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 24 | 3 |
| Total No. Individuals: | 155 | 3 |
| EPT Taxa: | 3 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 49.68 | 1 |
| Diptera Taxa: | 2 | 1 |
| % Intolerant (0-3): | 2.58 | 1 |
| % Tolerant (8-10): | 19.35 | 3 |
| % Predators FFG 1: | 17.42 | 1 |
| % Shredders + Scrapers FFG 1: | 28.39 | 5 |
| % Collector-Filterers FFG 1: | .65 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 7 |
| Shannon-Weaver Index | 3.41 |
| Shannon Equitability | .36 |
| % Dominant 3 Taxon | 58.71 |
| % Chironomidae | 1.29 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11752 | 130723401 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0029 | 13T-034 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Turkey Creek / Arthur Street | Lake | 07/23/2013 |

☑ ***Habitat Complete*** ☐ ***Sample Quality Rejected***

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .6 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other Silt

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 10 | 90 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 10 | | 90 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid
☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0029 | 13T-034 | MHAB | AB11752 | 130723401 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Turkey Creek | Arthur Street | 040400010505 | 04040001030020 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4594979.32 | 470063.96 | 54 | 3.392 | 5.595 | 27 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 8 | | 4 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 1 | | |
| 1553 (Tubificidae with pectinate chetae and hair chetae) | 1 | | |
| 1234 (GLOSSIPHONIIDAE) | 23 | | |
| 1233 (ERPOBDELLIDAE) | 5 | | |
| 1207 (VIVIPARIDAE) | 2 | | 6 |
| 2197 (C. chinensis malleata) | 3 | | |
| 2202 (Valvata bicarinata) | 2 | | |
| 1206 (PLANORBIDAE) | 14 | | 6 |
| 2272 (Planorbella) | 17 | | |
| 2252 (Physella) | 2 | | 8 |
| 2185 (Sphaerium striatinum) | 19 | | 6 |
| 9050 (Hyalella) | 20 | | |
| 9056 (Crangonyx) | 2 | | 6 |
| 1026 (COENAGRIONIDAE) | 1 | | 9 |
| 7031 (Ischnura verticalis) | 22 | | |
| 3542 (Ischnura posita) | 1 | | |
| 7201 (Trichocorixa calva) | 1 | 1F | 4 |
| 7225 (Notonecta irrorata) | 2 | | |
| 1039 (BELOSTOMATIDAE) | 4 | | |
| 3600 (Peltodytes duodecimpunctatus) | 6 | 6A | |
| 3602 (Peltodytes muticus) | 3 | 3A | |
| 3605 (Peltodytes edentulus) | 3 | 3A | 6 |
| 3851 (Berosus peregrinus) | 2 | 2A | 6 |
| 3909 (Helochares) | 1 | 1L | 5 |
| 3946 (Cyphon) | 2 | 2L | |
| 9321 (Cricotopus (Isocladius) sylvestris grp.) | 1 | | |
| 8123 (Endochironomus) | 1 | | 6 |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 28 | 3 |
| Total No. Individuals: | 169 | 3 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 70.41 | 1 |
| Diptera Taxa: | 2 | 1 |
| % Intolerant (0-3): | 0 | 1 |
| % Tolerant (8-10): | 1.78 | 5 |
| % Predators FFG 1: | 34.91 | 3 |
| % Shredders + Scrapers FFG 1: | 15.38 | 3 |
| % Collector-Filterers FFG 1: | 11.24 | 3 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.79 |
| Shannon-Weaver Index | 3.97 |
| Shannon Equitability | .42 |
| % Dominant 3 Taxon | 38.46 |
| % Chironomidae | 1.18 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11744 | 130723107 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0021 | 13T-026 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Main Beaver Dam Ditch / 101st Avenue | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .5 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☐ Residential
☐ Field/Pasture ☑ Commercial
☐ Agricultural ☐ Industrial
Other: MARSH
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 4 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other:

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other: SILT

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | | 100 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| | | 100 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☑ Sheen ☐ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer:**

**Turbidity (Estimated)**
☐ Clear ☑ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity:**

**ORP:**

Other:

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0021 | 13T-026 | MHAB | AB11744 | 130723107 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Main Beaver Dam Ditch | 101st Avenue | 040400010501 | 04040001030030 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4587121.12 | 466328.72 | 54 | 2.593 | 1.536 | 27 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1498 (Nais) | 1 | | 8 |
| 1234 (GLOSSIPHONIIDAE) | 2 | | |
| 1088 (Gyraulus) | 1 | | 8 |
| 2272 (Planorbella) | 3 | | |
| 2157 (Musculium) | 1 | | 6 |
| 9050 (Hyalella) | 14 | | |
| 7230 (Neoplea striola) | 4 | | |
| 7208 (Belostoma flumineum) | 2 | | 4 |
| 7144 (Mesovelia) | 2 | | |
| 3729 (Neoporus clypealis) | 3 | 3A | |
| 3872 (Tropisternus) | 2 | 2L | |
| 3884 (Enochrus ochraceus) | 2 | 2A | |
| 3946 (Cyphon) | 7 | 7L | |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 9243 (Ablabesmyia (Karelia)) | 3 | | |
| 8180 (Polypedilum tritum) | 1 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 3 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 17 | 1 |
| Total No. Individuals: | 52 | 1 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 42.31 | 1 |
| Diptera Taxa: | 4 | 1 |
| % Intolerant (0-3): | 0 | 1 |
| % Tolerant (8-10): | 3.85 | 5 |
| % Predators FFG 1: | 11.54 | 1 |
| % Shredders + Scrapers FFG 1: | 15.38 | 3 |
| % Collector-Filterers FFG 1: | 1.92 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **26** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6 |
| Shannon-Weaver Index | 3.59 |
| Shannon Equitability | .38 |
| % Dominant 3 Taxon | 48.08 |
| % Chironomidae | 15.38 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11743 | 130723109 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0020 | 13T-025 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Main Beaver Dam Ditch / Clark Road | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .5 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☑ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 5 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other MUCK

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | | 100 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 10 | | 90 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☑ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0020 | 13T-025 | MHAB | AB11743 | 130723109 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Main Beaver Dam Ditch | Clark Road | 040400010501 | 04040001030030 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4587870.87 | 467204.61 | 54 | 2.892 | 9.86 | 24 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1532 (Stylaria lacustris) | 2 | | 8 |
| 1498 (Nais) | 4 | | 8 |
| 1509 (Ophidonais serpentina) | 5 | | 6 |
| 1553 (Tubificidae with pectinate chetae and hair chetae) | 2 | | |
| 1234 (GLOSSIPHONIIDAE) | 1 | | |
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 9050 (Hyalella) | 1 | | |
| 3081 (Callibaetis) | 1 | | 6 |
| 3189 (Caenis punctata) | 1 | | |
| 1026 (COENAGRIONIDAE) | 6 | | 9 |
| 7031 (Ischnura verticalis) | 2 | | |
| 3542 (Ischnura posita) | 2 | | |
| 1041 (CORIXIDAE) | 1 | | 5 |
| 7203 (Trichocorixa sexcincta) | 3 | 2M,1F | 4 |
| 7224 (Notonecta) | 1 | imm | |
| 7230 (Neoplea striola) | 4 | | |
| 3591 (Haliplus borealis) | 1 | 1A | 5 |
| 3592 (Haliplus immaculicollis) | 4 | 4A | 6 |
| 3602 (Peltodytes muticus) | 2 | 2A | |
| 3605 (Peltodytes edentulus) | 1 | 1A | 6 |
| 3665 (Hygrotus) | 1 | 1A | |
| 3872 (Tropisternus) | 5 | 5L | |
| 3946 (Cyphon) | 1 | 1L | |
| 7296 (Dubiraphia) | 2 | 2L | 5 |
| 3911 (Hydrochus) | 1 | 1A | 5 |
| 7732 (Anopheles) | 1 | | |
| 7929 (Clinotanypus pinguis) | 5 | | 8 |
| 8086 (Chironomus) | 4 | | 8 |
| 8097 (Cladopelma) | 3 | | 9 |
| 8112 (Dicrotendipes) | 10 | | 6 |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 30 | 3 |
| Total No. Individuals: | 78 | 1 |
| EPT Taxa: | 2 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 20.51 | 3 |
| Diptera Taxa: | 5 | 1 |
| % Intolerant (0-3): | 0 | 1 |
| % Tolerant (8-10): | 30.77 | 1 |
| % Predators FFG 1: | 15.38 | 1 |
| % Shredders + Scrapers FFG 1: | 10.26 | 3 |
| % Collector-Filterers FFG 1: | 1.28 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **26** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.87 |
| Shannon-Weaver Index | 4.53 |
| Shannon Equitability | .48 |
| % Dominant 3 Taxon | 26.92 |
| % Chironomidae | 28.21 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11725 | 130722301 | ☐ Black Light | ☐ Kick | 1 |
| Site Name | EPA ID | | | |
| LMG-05-0008 | 13T-007 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Hydrolab Turbidity = 85.6.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Deep River / Shelby Street | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☑ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .7 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | 30 |

**Predominant Surrounding Land Use**
☑ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | .5 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other SILT

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 20 | | 80 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 20 | 30 | 50 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☑ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0008 | 13T-007 | MHAB | AB11725 | 130722301 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Deep River | Shelby Street | 040400010508 | 04040001040020 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4600822.5 | 480291.38 | 54 | 1.936 | 3.862 | 34 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 6 | | 4 |
| 1421 (Aulodrilus pigueti) | 1 | | 7 |
| 1422 (Aulodrilus pluriseta) | 2 | | 7 |
| 1557 (Dero (Dero)) | 1 | | |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 4 | | |
| 1234 (GLOSSIPHONIIDAE) | 4 | | |
| 1233 (ERPOBDELLIDAE) | 3 | | |
| 1207 (VIVIPARIDAE) | 4 | | 6 |
| 2272 (Planorbella) | 8 | | |
| 2252 (Physella) | 3 | | 8 |
| 2161 (Musculium transversum) | 16 | | 6 |
| 9036 (Caecidotea) | 1 | | 8 |
| 9068 (Gammarus) | 5 | | 6 |
| 3251 (Nasiaeschna pentacantha) | 1 | | |
| 3295 (Celithemis) | 1 | | |
| 9315 (Epitheca (Tetragoneuria)) | 1 | | |
| 7031 (Ischnura verticalis) | 10 | | |
| 3542 (Ischnura posita) | 6 | | |
| 1041 (CORIXIDAE) | 1 | | 5 |
| 7225 (Notonecta irrorata) | 2 | | |
| 7230 (Neoplea striola) | 1 | | |
| 1039 (BELOSTOMATIDAE) | 2 | | |
| 7099 (Aquarius remigis) | 1 | | |
| 9290 (Gerridae (Gerrinae)) | 1 | | |
| 3602 (Peltodytes muticus) | 2 | 2A | |
| 3604 (Peltodytes sexmaculatus) | 1 | 1A | |
| 3884 (Enochrus ochraceus) | 1 | 1A | |
| 3946 (Cyphon) | 12 | 12L | |
| 3804 (Climacia areolaris) | 1 | | |
| 8984 (Bezzia/Palpomyia) | 1 | | |
| 7984 (Procladius) | 4 | | 7 |
| 9261 (Thienemannimyia grp.) | 3 | | |
| 8123 (Endochironomus) | 2 | | 6 |
| 8168 (Paratendipes albimanus) | 1 | | 4 |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 1 | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 35 | 3 |
| Total No. Individuals: | 114 | 1 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 50.88 | 1 |
| Diptera Taxa: | 6 | 1 |
| % Intolerant (0-3): | 0 | 1 |
| % Tolerant (8-10): | 3.51 | 5 |
| % Predators FFG 1: | 29.82 | 3 |
| % Shredders + Scrapers FFG 1: | 18.42 | 3 |
| % Collector-Filterers FFG 1: | 14.04 | 3 |
| % Sprawlers: | 3.51 | 3 |
| **mIBI Metric Score:** | | **30** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6 |
| Shannon-Weaver Index | 4.52 |
| Shannon Equitability | .48 |
| % Dominant 3 Taxon | 33.33 |
| % Chironomidae | 9.65 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11731 | 130722308 | ☐ Black Light | ☐ Kick | 1 |
| Site Name | EPA ID | | | |
| LMG-05-0033 | 13T-013 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Q2 Turbidity: 62.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Sprout Ditch / 70th Avenue | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .7 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | 75 |

**Predominant Surrounding Land Use**
☑ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 3 | 1 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other
**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other
**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse
☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | 10 | 50 | 30 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 40 | 60 | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid
☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0033 | 13T-013 | MHAB | AB11731 | 130722308 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Sprout Ditch | 70th Avenue | 040400010507 | 04040001030060 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4593522.56 | 475991.81 | 54 | 19.999 | 3.628 | 57 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 2 | | 4 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 1 | | |
| 1231 (BRANCHIOBDELLIDA) | 1 | | |
| 1089 (Helisoma) | 1 | | 6 |
| 2252 (Physella) | 6 | | 8 |
| 1092 (PISIDIIDAE) | 3 | | 8 |
| 2185 (Sphaerium striatinum) | 6 | | 6 |
| 2157 (Musculium) | 9 | | 6 |
| 9036 (Caecidotea) | 1 | | 8 |
| 9068 (Gammarus) | 1 | | 6 |
| 8996 (Orconectes) | 2 | | 4 |
| 7031 (Ischnura verticalis) | 3 | | |
| 7189 (Sigara) | 1 | | |
| 7099 (Aquarius remigis) | 1 | | |
| 7122 (Microvelia) | 2 | | |
| 7307 (Stenelmis) | 22 | 22L | 5 |
| 7309 (Stenelmis crenata) | 3 | 3A, 0121.1 | 5 |
| 7296 (Dubiraphia) | 13 | 13L | 5 |
| 7299 (Dubiraphia quadrinotata) | 46 | 46A, 0121.3, 412um | 3 |
| 7298 (Dubiraphia minima) | 3 | 3A, 0121.2, 315um | |
| 3432 (Cheumatopsyche) | 1 | | 3 |
| 9318 (Oecetis sp. A) | 1 | | |
| 9285 (Tipula (Yamatotipula)) | 1 | | |
| 7849 (Culicoides) | 2 | | 10 |
| 7929 (Clinotanypus pinguis) | 1 | | 8 |
| 7984 (Procladius) | 4 | | 7 |
| 8083 (Chironomini (Tribe)) | 6 | | |
| 9261 (Thienemannimyia grp.) | 1 | | |
| 8099 (Cryptochironomus) | 1 | | 5 |
| 8168 (Paratendipes albimanus) | 4 | | 4 |
| 8235 (Paratanytarsus) | 1 | | 4 |
| 8241 (Tanytarsus) | 5 | | 4 |
| 9278 (Polypedilum (Tripodura) halterale-simulans grp) | 1 | | |
| 9238 (Polypedilum (Uresipedilum) flavum) | 2 | | |
| 8397 (Hemerodromia) | 1 | | |
| | | | |
| | | | |
| | | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 35 | 3 |
| Total No. Individuals: | 159 | 3 |
| EPT Taxa: | 2 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 23.08 | 5 |
| % Non-insects excluding Astacidae: | 19.5 | 3 |
| Diptera Taxa: | 13 | 5 |
| % Intolerant (0-3): | 29.56 | 3 |
| % Tolerant (8-10): | 8.18 | 5 |
| % Predators FFG 1: | 8.81 | 1 |
| % Shredders + Scrapers FFG 1: | 20.13 | 5 |
| % Collector-Filterers FFG 1: | 15.09 | 3 |
| % Sprawlers: | 3.77 | 3 |
| **mIBI Metric Score:** | | **42** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 4.7 |
| Shannon-Weaver Index | 3.97 |
| Shannon Equitability | .42 |
| % Dominant 3 Taxon | 50.94 |
| % Chironomidae | 16.35 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11732 | 130722309 | ☐ Black Light | ☐ Kick | 1 |
| Site Name | EPA ID | | | |
| LMG-05-0012 | 13T-014 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Q2 Turbidity: 1.0.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Deep River / Joliet Road | Lake | 07/22/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| Erosion | NPS Pollution |
| ☑ None | ☑ No Evidence |
| ☐ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| Riffle | Run | Pool |
| .1 | .3 | 1 |

| Distances | |
|---|---|
| Riffle-Riffle | Bend-Bend |
| 20 | 30 |

**Predominant Surrounding Land Use**
☑ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 13 | 1 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other
**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other
**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse
☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| Bedrock | Boulder (>10in) | Cobble (2.5-10in) | Gravel (0.1-2.5in) | Sand (gritty) | Silt | Clay (slick) |
| | 10 | 20 | 30 | 30 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| Detritus (sticks, woods) | Detritus (CPOM) | Muck/Mud (black, fine FPOM) | Marl (gray w/shell fragments) |
| 60 | 40 | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☑ Flocks
☐ Sheen ☐ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0012 | 13T-014 | MHAB | AB11732 | 130722309 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Deep River | Joliet Road | 040400010507 | 04040001030060 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4591638.73 | 481618.77 | 54 | 7.987 | 66.707 | 80 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1260 (NEMATODA) | 1 | | 6 |
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 2252 (Physella) | 1 | | 8 |
| 2156 (Corbicula fluminea) | 7 | | 6 |
| 2181 (Sphaerium) | 5 | | 6 |
| 2162 (Pisidium) | 1 | | 6 |
| 9036 (Caecidotea) | 20 | | 8 |
| 9068 (Gammarus) | 5 | | 6 |
| 9050 (Hyalella) | 1 | | |
| 8996 (Orconectes) | 2 | 2F | 4 |
| 9008 (Orconectes rusticus) | 1 | 1F | 6 |
| 1017 (HEPTAGENIIDAE) | 3 | | 4 |
| 3019 (Maccaffertium exiguum) | 1 | | 2 |
| 3036 (Leucrocuta) | 2 | | 2 |
| 3049 (Stenacron interpunctatum) | 1 | | 7 |
| 3066 (Baetis intercalaris) | 11 | | 3 |
| 3245 (Boyeria vinosa) | 1 | | 4 |
| 3551 (Enallagma exsulans) | 1 | | |
| 1041 (CORIXIDAE) | 3 | imm | 5 |
| 7230 (Neoplea striola) | 2 | | |
| 1038 (GERRIDAE) | 2 | imm | |
| 7102 (Gerris buenoi) | 2 | 1M,1F | |
| 9092 (Aquarius) | 1 | | |
| 1037 (VELIIDAE) | 1 | imm | |
| 7132 (Rhagovelia oriander) | 1 | | |
| 7123 (Microvelia americana) | 2 | 1M,1F | |
| 3600 (Peltodytes duodecimpunctatus) | 1 | 1A | |
| 3602 (Peltodytes muticus) | 1 | 1A | |
| 3776 (Uvarus) | 1 | 1A | |
| 3846 (Berosus) | 1 | 1L | 7 |
| 3851 (Berosus peregrinus) | 3 | 3A | 6 |
| 3863 (Paracymus) | 1 | 1A | |
| 7307 (Stenelmis) | 7 | 7L | 5 |
| 7309 (Stenelmis crenata) | 4 | 3M,1F; 0105.1 | 5 |
| 7296 (Dubiraphia) | 5 | 5L | 5 |
| 7299 (Dubiraphia quadrinotata) | 2 | 2M | 3 |
| 7298 (Dubiraphia minima) | 29 | 17M,12F | |
| 7304 (Optioservus fastiditus) | 1 | 1M | 2 |
| 7295 (Ancyronyx variegatus) | 1 | 1A | 4 |
| 7321 (Macronychus glabratus) | 5 | 4A,1L | 3 |
| 3432 (Cheumatopsyche) | 19 | | 3 |
| 3423 (Hydropsyche) | 9 | | 4 |
| 8980 (Hydropsyche betteni grp) | 77 | | |
| 3419 (Ceratopsyche) | 8 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 59 | 5 |
| Total No. Individuals: | 293 | 5 |
| EPT Taxa: | 11 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 3.33 | 5 |
| % Non-insects excluding Astacidae: | 14.33 | 5 |
| Diptera Taxa: | 13 | 5 |
| % Intolerant (0-3): | 15.36 | 1 |
| % Tolerant (8-10): | 8.87 | 5 |
| % Predators FFG 1: | 5.12 | 1 |
| % Shredders + Scrapers FFG 1: | 6.14 | 1 |
| % Collector-Filterers FFG 1: | 17.41 | 3 |
| % Sprawlers: | .68 | 1 |
| **mIBI Metric Score:** | | **40** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 4.94 |
| Shannon-Weaver Index | 4.52 |
| Shannon Equitability | .48 |
| % Dominant 3 Taxon | 43 |
| % Chironomidae | 10.24 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 3431 (Ceratopsyche sparna) | 4 | | 3 |
| 9319 (Ceratopsyche "checkerboard") | 1 | | |
| 9285 (Tipula (Yamatotipula)) | 1 | | |
| 9133 (Pericoma/Telmatoscopus) | 1 | | |
| 7814 (Simulium) | 1 | | 5 |
| 9316 (Phaenopsectra obediens grp.) | 4 | | |
| 8086 (Chironomus) | 5 | | 8 |
| 8099 (Cryptochironomus) | 2 | | 5 |
| 8104 (Cryptotendipes) | 1 | | 4 |
| 8168 (Paratendipes albimanus) | 1 | | 4 |
| 8241 (Tanytarsus) | 1 | | 4 |
| 9277 (Polypedilum (Tripodura) scalaenum grp) | 2 | | |
| 9238 (Polypedilum (Uresipedilum) flavum) | 11 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 3 | | |
| 8320 (Chrysops) | 1 | | 5 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11733 | 130723301 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0013 | 13T-015 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Q-2 Turbidity: 31 NTU.

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Deep River / 750 W | Porter | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☑ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .2 | .3 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| 25 | |

**Predominant Surrounding Land Use**
☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 1 | .5 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ **Are the undersides of stones, which are not deeply embedded, black?**

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 20 | 80 | | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 40 | 60 | | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☐ Warm ☑ Cold

**Barometer**

**Turbidity (Estimated)**
☑ Clear ☐ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0013 | 13T-015 | MHAB | AB11733 | 130723301 | 7/23/13 | Porter |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Deep River | 750 W | 040400010504 | 04040001030050 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4590345.78 | 482449.42 | 54 | 27.7 | 2.912 | 50 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1086 (OLIGOCHAETA) | 1 | | 8 |
| 1092 (PISIDIIDAE) | 3 | | 8 |
| 2162 (Pisidium) | 1 | | 6 |
| 9036 (Caecidotea) | 54 | | 8 |
| 9068 (Gammarus) | 136 | | 6 |
| 9019 (Cambarus) | 1 | | 2 |
| 8996 (Orconectes) | 3 | | 4 |
| 3071 (Baetis flavistriga) | 1 | | 3 |
| 1022 (CALOPTERYGIDAE) | 1 | | 5 |
| 7026 (Calopteryx maculata) | 1 | | |
| 7215 (Nepa apiculata) | 2 | | |
| 7123 (Microvelia americana) | 2 | | |
| 9290 (Gerridae (Gerrinae)) | 4 | | |
| 3608 (Agabus) | 1 | | 5 |
| 3960 (Helichus basalis) | 8 | | |
| 7309 (Stenelmis crenata) | 1 | 0117.1 | 5 |
| 7296 (Dubiraphia) | 1 | 1L | 5 |
| 7299 (Dubiraphia quadrinotata) | 4 | | 3 |
| 7304 (Optioservus fastiditus) | 7 | | 2 |
| 7321 (Macronychus glabratus) | 3 | | 3 |
| 1057 (HYDROPSYCHIDAE) | 1 | | 4 |
| 3419 (Ceratopsyche) | 1 | | |
| 1073 (CHIRONOMIDAE(all other)) | 1 | 1P | 6 |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 8168 (Paratendipes albimanus) | 2 | | 4 |
| 8211 (Stictochironomus) | 1 | | 4 |
| 9277 (Polypedilum (Tripodura) scalaenum grp) | 1 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 27 | 3 |
| Total No. Individuals: | 243 | 3 |
| EPT Taxa: | 3 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 80.25 | 1 |
| Diptera Taxa: | 5 | 1 |
| % Intolerant (0-3): | 6.58 | 1 |
| % Tolerant (8-10): | 23.87 | 3 |
| % Predators FFG 1: | 1.23 | 1 |
| % Shredders + Scrapers FFG 1: | 3.29 | 1 |
| % Collector-Filterers FFG 1: | 2.88 | 5 |
| % Sprawlers: | 0 | 1 |
| **mIBI Metric Score:** | | **28** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.19 |
| Shannon-Weaver Index | 2.35 |
| Shannon Equitability | .25 |
| % Dominant 3 Taxon | 81.48 |
| % Chironomidae | 2.47 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11738 | 130723308 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | ☐ Qualitative | ☐ CPOM | |
| LMG-05-0016 | 13T-020 | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**
Hach reading "99.9"
Q-2 turbidity =16.3
Winkler #3 1.3 mg/l (twice).

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Niles Ditch / Colorado Street | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☑ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .8 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**
☐ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☑ Agricultural ☐ Industrial
Other
☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 5 | 1 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse ☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | 10 | 70 | 20 |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 10 | 30 | 30 | 30 |

## Water Quality

**Water Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None

**Water Surface Oils:** ☐ Slick ☐ Flocks ☐ Sheen ☑ None ☐ Glob

**Stream Type:** ☑ Warm ☐ Cold

**Barometer:**

**Turbidity (Estimated):** ☐ Clear ☐ Turbid ☑ Slightly Turbid ☐ Opaque

**Salinity:**

**ORP:**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0016 | 13T-020 | MHAB | AB11738 | 130723308 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Niles Ditch | Colorado Street | 040400010502 | 04040001030040 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4585830.09 | 475209.64 | 54 | 1.36 | 10.029 | 34 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1433 (Limnodrilus cervix) | 1 | PL=1100um | 10 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 3 | | |
| 1233 (ERPOBDELLIDAE) | 5 | | |
| 1207 (VIVIPARIDAE) | 3 | | 6 |
| 2252 (Physella) | 28 | | 8 |
| 2181 (Sphaerium) | 7 | | 6 |
| 9036 (Caecidotea) | 5 | | 8 |
| 9050 (Hyalella) | 14 | | |
| 9056 (Crangonyx) | 1 | | 6 |
| 8996 (Orconectes) | 1 | 1MII | 4 |
| 9001 (Orconectes immunis) | 1 | 1MII | |
| 3183 (Caenis) | 2 | | 3 |
| 3227 (Anax) | 1 | | |
| 1026 (COENAGRIONIDAE) | 3 | | 9 |
| 7031 (Ischnura verticalis) | 17 | | |
| 3549 (Enallagma divagans) | 1 | | |
| 1041 (CORIXIDAE) | 7 | | 5 |
| 7189 (Sigara) | 3 | | |
| 7201 (Trichocorixa calva) | 15 | 6M,9F | 4 |
| 7184 (Palmacorixa buenoi) | 6 | | 4 |
| 7224 (Notonecta) | 2 | | |
| 9282 (Notonecta uhleri) | 1 | | |
| 7226 (Notonecta lunata) | 4 | | |
| 7207 (Belostoma) | 3 | | |
| 7121 (Trepobates subnitidus) | 1 | | |
| 7105 (Gerris marginatus) | 1 | | |
| 3591 (Haliplus borealis) | 5 | 5A | 5 |
| 3592 (Haliplus immaculicollis) | 1 | 1A | 6 |
| 3600 (Peltodytes duodecimpunctatus) | 30 | 30A | |
| 3605 (Peltodytes edentulus) | 4 | 4A | 6 |
| 3851 (Berosus peregrinus) | 6 | 6A | 6 |
| 3863 (Paracymus) | 2 | 2A | |
| 3872 (Tropisternus) | 6 | 6L | |
| 3873 (T. lateralis nimbatus) | 1 | 1A | |
| 3885 (Enochrus perplexus) | 1 | 1A | |
| 3946 (Cyphon) | 3 | 3L | |
| 8943 (Triaenodes marginatus) | 1 | | |
| 9318 (Oecetis sp. A) | 12 | 1P | |
| 7929 (Clinotanypus pinguis) | 6 | | 8 |
| 7984 (Procladius) | 1 | | 7 |
| 7992 (Tanypus neopunctipennis) | 1 | | 8 |
| 9246 (Ablabesmyia (Ablabesmyia)) | 1 | | |
| 9247 (Ablabesmyia (Ablabesmyia) | 1 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 47 | 5 |
| Total No. Individuals: | 222 | 3 |
| EPT Taxa: | 3 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 7.14 | 5 |
| % Non-insects excluding Astacidae: | 30.18 | 3 |
| Diptera Taxa: | 9 | 3 |
| % Intolerant (0-3): | .9 | 1 |
| % Tolerant (8-10): | 20.27 | 3 |
| % Predators FFG 1: | 27.93 | 3 |
| % Shredders + Scrapers FFG 1: | 22.52 | 5 |
| % Collector-Filterers FFG 1: | 3.15 | 5 |
| % Sprawlers: | .9 | 1 |
| **mIBI Metric Score:** | | **38** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 6.31 |
| Shannon-Weaver Index | 4.67 |
| Shannon Equitability | .5 |
| % Dominant 3 Taxon | 33.78 |
| % Chironomidae | 6.31 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| aspera grp.) | | | |
| 9317 (Zavreliella marmorata) | 1 | | |
| 8097 (Cladopelma) | 1 | | 9 |
| 8112 (Dicrotendipes) | 1 | | 6 |
| 8157 (Parachironomus) | 1 | | 4 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11742 | 130722404 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0019 | 13T-024 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Tributary of Main Beaver Dam Ditch / Summit Street | Lake | 07/22/2013 |

☑ ***Habitat Complete*** ☐ ***Sample Quality Rejected***

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☐ No Evidence |
| ☑ Moderate | ☑ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .4 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☑ Residential
☐ Field/Pasture ☐ Commercial
☐ Agricultural ☐ Industrial

**Other**

☑ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 4 | | | |

## Sediment

**Sediment Odors:** ☐ Normal ☑ Sewage ☐ Petroleum ☐ Chemical ☑ Anaerobic ☐ None **Other**

**Sediment Deposits:** ☑ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells **Other**

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ **Are the undersides of stones, which are not deeply embedded, black?**

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | | | 100 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 10 | | 90 | |

## Water Quality

**Water Odors**
☐ Normal ☐ Petroleum ☐ None
☑ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☑ Turbid
☐ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

**Other**

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0019 | 13T-024 | MHAB | AB11742 | 130722404 | 7/22/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Tributary of Main Beaver Dam Ditch | Summit Street | 040400010501 | 04040001030030 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4586262.38 | 469142.87 | 54 | 4.037 | 2.793 | 22 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1400 (Lumbriculus variegatus) | 7 | | |
| 1498 (Nais) | 1 | | 8 |
| 1553 (Tubificidae with pectinate chetae and hair chetae) | 1 | | |
| 2202 (Valvata bicarinata) | 6 | | |
| 2252 (Physella) | 30 | | 8 |
| 2157 (Musculium) | 3 | | 6 |
| 9036 (Caecidotea) | 12 | | 8 |
| 1251 (ISOTOMIDAE) | 1 | | |
| 3230 (Aeshna umbrosa) | 1 | | |
| 7189 (Sigara) | 1 | | |
| 7225 (Notonecta irrorata) | 2 | | |
| 3600 (Peltodytes duodecimpunctatus) | 2 | 2A | |
| 3602 (Peltodytes muticus) | 1 | 1A | |
| 3605 (Peltodytes edentulus) | 1 | 1A | 6 |
| 7938 (Psectrotanypus dyari) | 19 | | 9 |
| 7984 (Procladius) | 1 | | 7 |
| 8086 (Chironomus) | 22 | | 8 |
| 8112 (Dicrotendipes) | 1 | | 6 |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 18 | 1 |
| Total No. Individuals: | 112 | 1 |
| EPT Taxa: | 0 | 1 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 0 | 5 |
| % Non-insects excluding Astacidae: | 53.57 | 1 |
| Diptera Taxa: | 4 | 1 |
| % Intolerant (0-3): | 0 | 1 |
| % Tolerant (8-10): | 75 | 1 |
| % Predators FFG 1: | 3.57 | 1 |
| % Shredders + Scrapers FFG 1: | 27.68 | 5 |
| % Collector-Filterers FFG 1: | 2.68 | 5 |
| % Sprawlers: | .89 | 1 |
| **mIBI Metric Score:** | | **24** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 8.09 |
| Shannon-Weaver Index | 3.12 |
| Shannon Equitability | .33 |
| % Dominant 3 Taxon | 63.39 |
| % Chironomidae | 38.39 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# Macroinvertebrate Header

| Sample # | Macro Event # | Macro Sample Type | | # Containers |
|---|---|---|---|---|
| AB11736 | 130723305 | ☐ Black Light | ☐ Kick | 1 |
| **Site Name** | **EPA ID** | | | |
| LMG-05-0015 | 13T-018 | ☐ Qualitative | ☐ CPOM | |
| | | ☐ Hester-Dendy | ☑ MHAB | |

**NOTES**

| *Stream Name / Location* | *County* | *Sample Date* |
|---|---|---|
| Deep River / Clay Street | Lake | 07/23/2013 |

☑ *Habitat Complete* ☐ *Sample Quality Rejected*

## Riparian Zone/Instream Features

| Watershed | |
|---|---|
| **Erosion** | **NPS Pollution** |
| ☐ None | ☑ No Evidence |
| ☑ Moderate | ☐ Some Potential Sources |
| ☐ Heavy | ☐ Obvious Sources |

| Stream Depth | | |
|---|---|---|
| **Riffle** | **Run** | **Pool** |
| | .3 | .8 |

| Distances | |
|---|---|
| **Riffle-Riffle** | **Bend-Bend** |
| | |

**Predominant Surrounding Land Use**

☐ Forest ☐ Residential
☐ Field/Pasture ☐ Commercial
☑ Agricultural ☐ Industrial
Other
☐ Channelization ☐ Dam Present

| Stream Width | High Water Mark | Velocity | *Canopy Cover (% Open)* |
|---|---|---|---|
| 13 | 2 | | |

## Sediment

**Sediment Odors:** ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other

**Sediment Deposits:** ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☑ Sand ☐ Relic Shells Other

**Sediment Oils:** ☑ Absent ☐ Moderate ☐ Slight ☐ Profuse

☐ Are the undersides of stones, which are not deeply embedded, black?

## Substrate Components

*(Note: Select From 0%, 20%, 40%, 60%, 80%, or 100% for each inorganic and organic substrate component)*

| Inorganic Substrate Components (% Diameter) | | | | | | |
|---|---|---|---|---|---|---|
| **Bedrock** | **Boulder (>10in)** | **Cobble (2.5-10in)** | **Gravel (0.1-2.5in)** | **Sand (gritty)** | **Silt** | **Clay (slick)** |
| | | | 10 | 80 | 10 | |

| Organic Substrate Components (% Type) | | | |
|---|---|---|---|
| **Detritus (sticks, woods)** | **Detritus (CPOM)** | **Muck/Mud (black, fine FPOM)** | **Marl (gray w/shell fragments)** |
| 60 | 30 | 10 | |

## Water Quality

**Water Odors**
☑ Normal ☐ Petroleum ☐ None
☐ Sewage ☐ Chemical

**Water Surface Oils**
☐ Slick ☐ Flocks
☐ Sheen ☑ None
☐ Glob

**Stream Type**
☑ Warm ☐ Cold

**Barometer**

**Turbidity (Estimated)**
☐ Clear ☐ Turbid
☑ Slightly Turbid ☐ Opaque

**Salinity**

**ORP**

Other

**Instruments Used for:**

| Water Temp | DO | pH | Specific Conductivity |
|---|---|---|---|
| | | | |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Site Name | EPA ID | Macro Sample Type | Sample # | Macro Event # | Sample Date | County |
|---|---|---|---|---|---|---|
| LMG-05-0015 | 13T-018 | MHAB | AB11736 | 130723305 | 7/23/13 | Lake |

| Stream Name | Location | HUC 12 | HUCTO14 |
|---|---|---|---|
| Deep River | Clay Street | 040400010502 | 04040001030040 |

| Northing | Easting | Ecoregion | Gradient | Drainage Area | QHEI Score |
|---|---|---|---|---|---|
| 4588422.91 | 476810.3 | 54 | 3.348 | 44.481 | 59 |

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| 1084 (TURBELLARIA) | 1 | | 4 |
| 1396 (LUMBRICULIDAE) | 1 | | 5 |
| 1435 (Limnodrilus hoffmeisteri) | 1 | PL=490um | 10 |
| 1552 (Tubificidae with bifid chetae and no hair chetae) | 1 | | |
| 1233 (ERPOBDELLIDAE) | 1 | | |
| 2252 (Physella) | 23 | | 8 |
| 9036 (Caecidotea) | 2 | | 8 |
| 9056 (Crangonyx) | 2 | | 6 |
| 8996 (Orconectes) | 2 | | 4 |
| 1017 (HEPTAGENIIDAE) | 1 | | 4 |
| 3049 (Stenacron interpunctatum) | 3 | | 7 |
| 3066 (Baetis intercalaris) | 1 | 0120.3 | 3 |
| 3071 (Baetis flavistriga) | 1 | | 3 |
| 7027 (Hetaerina americana) | 2 | | |
| 1026 (COENAGRIONIDAE) | 2 | | 9 |
| 7031 (Ischnura verticalis) | 1 | | |
| 3551 (Enallagma exsulans) | 2 | | |
| 1041 (CORIXIDAE) | 4 | | 5 |
| 7201 (Trichocorixa calva) | 1 | | 4 |
| 7111 (Rheumatobates) | 4 | | |
| 3851 (Berosus peregrinus) | 4 | 4A | 6 |
| 3946 (Cyphon) | 10 | 10L | |
| 7307 (Stenelmis) | 2 | 1A,1L | 5 |
| 7299 (Dubiraphia quadrinotata) | 12 | 0120.1, 407um | 3 |
| 7300 (Dubiraphia vittata) | 18 | 0120.2, 207um | |
| 3793 (Chauliodes rastricornis) | 4 | | |
| 3432 (Cheumatopsyche) | 17 | | 3 |
| 8980 (Hydropsyche betteni grp) | 1 | | |
| 3000 (Hydroptila) | 1 | | 3 |
| 8083 (Chironomini (Tribe)) | 1 | | |
| 9248 (Ablabesmyia (Ablabesmyia) mallochi grp.) | 1 | | |
| 9250 (Ablabesmyia (Ablabesmyia) rhamphae grp.) | 1 | | |
| 9261 (Thienemannimyia grp.) | 3 | | |
| 9284 (Tribelos jucundus) | 1 | | |
| 8099 (Cryptochironomus) | 3 | | 5 |
| 8133 (Harnischia) | 1 | | 8 |
| 8211 (Stictochironomus) | 10 | | 4 |
| 8235 (Paratanytarsus) | 3 | | 4 |
| 8241 (Tanytarsus) | 3 | | 4 |
| 9277 (Polypedilum (Tripodura) scalaenum grp) | 1 | | |
| 9238 (Polypedilum (Uresipedilum) | 3 | | |

| Type | Value | Metric Score |
|---|---|---|
| Total Taxa: | 44 | 5 |
| Total No. Individuals: | 165 | 3 |
| EPT Taxa: | 7 | 3 |
| % Orthocladiinae + Tanytarsini of Chironomidae: | 15.38 | 5 |
| % Non-insects excluding Astacidae: | 19.39 | 3 |
| Diptera Taxa: | 15 | 5 |
| % Intolerant (0-3): | 19.39 | 3 |
| % Tolerant (8-10): | 17.58 | 3 |
| % Predators FFG 1: | 11.52 | 1 |
| % Shredders + Scrapers FFG 1: | 24.24 | 5 |
| % Collector-Filterers FFG 1: | 12.12 | 3 |
| % Sprawlers: | 1.82 | 1 |
| **mIBI Metric Score:** | | **40** |

## Supplemental Metrics

| | |
|---|---|
| HBI | 5.18 |
| Shannon-Weaver Index | 4.63 |
| Shannon Equitability | .5 |
| % Dominant 3 Taxon | 35.15 |
| % Chironomidae | 23.64 |

# OWQ/WAPB Macroinvertebrate Community Assessment
# MHAB Report

| Taxon | Count | Notes | HBI Tolerance |
|---|---|---|---|
| flavum) | | | |
| 9240 (Polypedilum (Polypedilum) fallax grp.) | 1 | | |
| 9241 (Polypedilum (Polypedilum) illinoense grp.) | 7 | | |
| 8355 (Tabanus) | 1 | | 5 |