

Volunteer Stream Monitoring Training Scheduled

TRAINING DAY

September 11, 2010 ~ 9:00am - 2:00pm

Training consists of presentations about various aspects of the program and general macroinvertebrate biology, equipment and field data sheet review, and a hands-on practicum on the Bear River, so that volunteers can "get their feet wet". Coffee and snacks provided and break taken for lunch.

FIELD DAY

September 18, 2010 ~ 9:00am - 2:00pm

Volunteer teams collect a representative sample of the aquatic macroinvertebrate population for later identification and also note general stream conditions. Each team monitors two sites on the same river or stream.

INDOOR SORTING & IDENTIFICATION DAY

October 3, 2010 ~ Noon - 3:00pm

Volunteer teams gather in room 262 of the Science Building on the NCMC Campus in Petoskey to sort and identify aquatic macroinvertebrate specimens collected in the field.

SPRING 2011 VSM TRAINING DATES

May 14, 2011 ~ Training Day

May 21, 2011 ~ Field Day

June 5, 2011 ~ Indoor Sorting & ID Day


Watershed Council
 426 Bay Street
 Petoskey, MI 49770
www.watershedcouncil.org



VOLUNTEER STREAM MONITORING 2010 REPORT



From humble beginnings in 2004 when four individuals monitored one stream, the Tip of the Mitten Watershed Council's Volunteer Stream Monitoring program has since burgeoned to well over 100 volunteers that are actively monitoring water quality at 25 locations on a dozen streams. Volunteers are trained by Watershed Council staff and then assigned to teams that monitor streams in Antrim, Charlevoix, Emmet and Cheboygan Counties. Teams collect a representative sample of aquatic macroinvertebrates (mayflies, stoneflies, etc) from the stream, which are later identified with the help of taxonomic experts.

The aquatic macroinvertebrate community paints a picture of stream ecosystem health. Community diversity and species sensitivity are key factors in determining water quality. A variety of pollution-sensitive stoneflies, mayflies, and caddisflies portrays a healthy ecosystem with good diversity and high water quality. A sample with only pollution-tolerant aquatic worms and midges reveals a stream ecosystem that is likely suffering.

Each spring and fall, dedicated and adventurous volunteers head into the field to monitor stream water quality by collecting macroinvertebrates. Groups of volunteers have adopted streams while others mix it up, changing streams and teams with each sampling event. In either case, stream monitors have a great time mucking about in the stream and socializing with other engaged and concerned members of the community.

Results so far? Because our watersheds are in such great shape, with little agricultural landuse and even less urban development, we have found excellent water quality in most streams monitored by volunteers. Typically, volunteers find a diverse aquatic macroinvertebrate community that includes a number of pollution-sensitive families. However, there are a few sites where diversity has been low; usually those located in urban areas.

Did your river or stream make the grade in 2010? See reverse side for details.



VOLUNTEER STREAM MONITORING... A fun and rewarding experience for all ages.

For more information about our Volunteer Stream Monitoring program please contact Kevin Crock at (231) 347-1181 or kevin@watershedcouncil.org

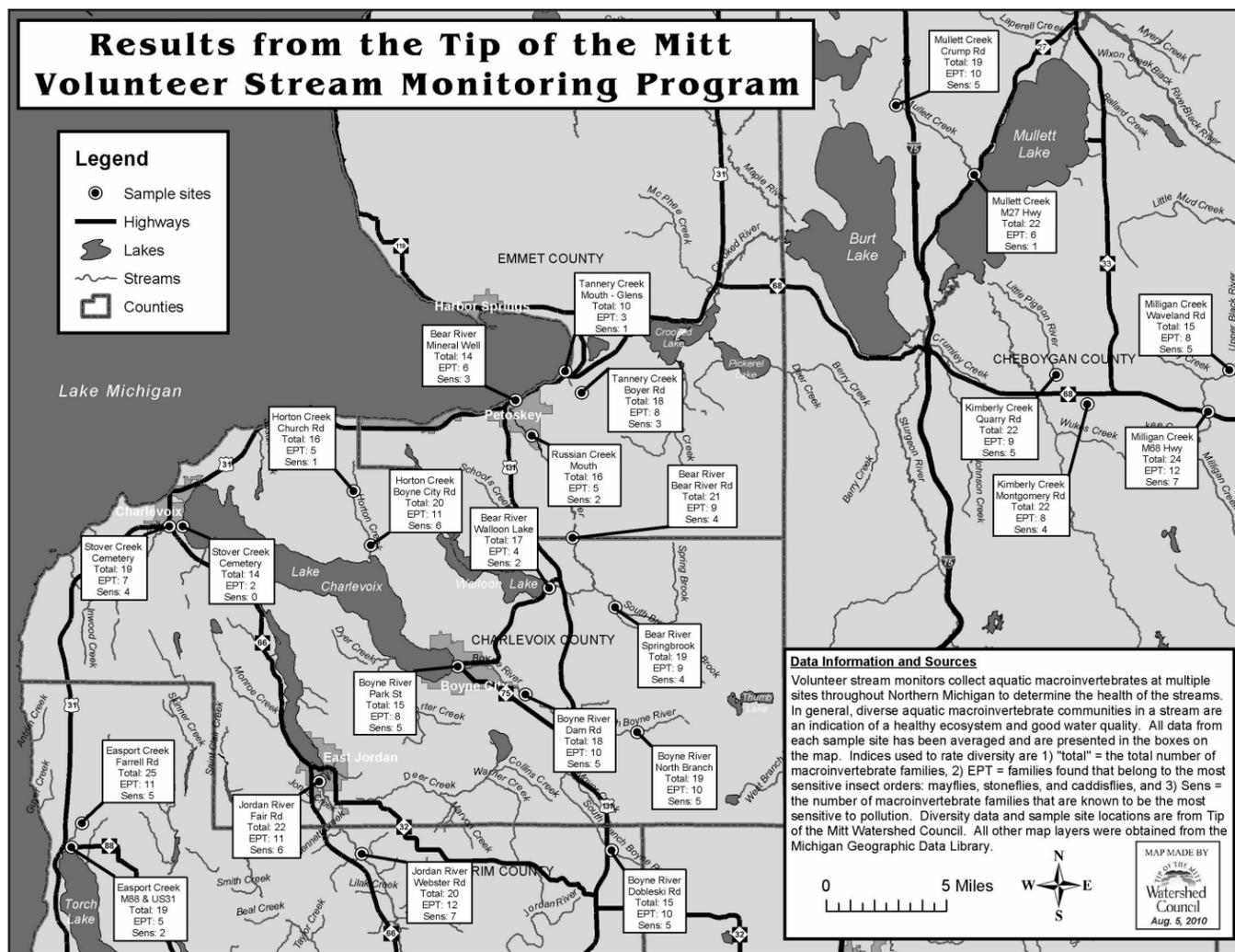


Streams are the freshwater circulation system of Northern Michigan, carrying rainwater, snowmelt, and groundwater into and out of a multitude of lakes. Often overlooked due to the region's grandiose lakes, there are literally thousands of miles of streams that dissect the landscape in the tip of the mitten. As a natural resource, these streams are invaluable. They provide clean, abundant water to lakes, they offer seemingly endless recreational opportunities to anglers, paddlers, and others, and they provide habitat to a wide variety of wildlife.

With so many stream miles, how can one or even multiple organizations monitor and safeguard the water quality of all these important streams? The simple answer is that they can't. However, with support from the volunteer community we can cover a lot more ground (water!). With this approach in mind, the Tip of the Mitten Watershed Council has enlisted the help of volunteers to help monitor, and thereby protect, the extensive network of magnificent streams in our backyard.

2010 STREAM REPORTS

Stream ecosystem health at a specific site is determined using three different measurements of diversity (i.e., indices): 1) **total taxa** = the total number of macroinvertebrate families found at the site; 2) **EPT taxa** = the number of families in the most sensitive insect orders (mayflies, stoneflies, and caddisflies); and 3) **sensitive taxa** = the number of families that are very sensitive to non-point source pollution as determined by PhD William Hilsenhoff. These indices are used in the following section to present findings from each stream monitored in our program. Scores for each stream are averaged using data from all monitoring events at that site and presented using the following format: (total, EPT, sensitive). For example, a site with a score of (20, 10, 5), means that it had an average of 20 total families, 10 EPT families, and 5 sensitive families.



Bear River: Grade = B

Currently, four sites are monitored on the Bear River. The sites with greatest diversity are the east branch headwaters at Springbrook Road (19, 9, 4) and mid-river at Bear River Road (21, 9, 4). In contrast, the sites at Melrose Township Park by Walloon Lake (17, 4, 2) and at Mineral Well Park in Petoskey (14, 6, 3) show much less diversity. Lower diversity at Melrose Township Park may be natural due to warmer waters draining from the lake (cold water holds more dissolved oxygen) whereas the Mineral Well Park site is likely impaired from urban development in Petoskey.

Boyne River: Grade = A

Initially, the Boyne River was monitored on the South Branch, to the south of Boyne Falls, and near the mouth in Boyne City. In late 2007, two more sites were added; in the North Branch along Thumb Lake Road and mid-river at Dam Road. In terms of total diversity, the North Branch (19, 10, 5) and Dam Rd (18, 10, 5) sites are the leaders. Although total diversity scores are lower, the South Branch site at Dobleski Road (15, 10, 5) and Boyne City site at Park Street (15, 8, 5) still boast high EPT and sensitive family diversity. There are localized conditions that may be contributing to the lower scores at these sites, namely urbanization in the Boyne City area and runoff laden with sediments from the road at the South Branch site.

Eastport Creek: Grade = A

Eastport Creek, which drains into the north end of Torch Lake has been monitored at two sites since 2005. The site in the upper reaches at Farrell Road is in excellent condition (25, 11, 5), while the site in the lower section across from the Eastport Market on US31 (19, 5, 2) is less diverse, but still contains a number of sensitive macroinvertebrate families. Factors affecting the health of Eastport Creek include agricultural activity in the upper watershed and residential development in the lower.

Horton Creek: Grade = A

Horton Creek flows into the north side of Lake Charlevoix and has been monitored consistently since 2005. The Church Road site (16, 5, 1) in the headwaters is a slow section of the stream flowing through wetland areas, which results in the accumulation of decomposing organic matter (a.k.a. muck!) and warmer water temperatures. These natural circumstances contribute to the relatively low diversity scores. Several families found at this site, such as beetles from the family Haliplidae or scuds from the family Hyalellidae, are indicative of slow-flowing waters and generally not found at other sites that we monitor. The picture is quite different downstream at Boyne City Road site (20, 11, 6), where stream flow is much faster and the stream bottom contains a wider variety of materials including gravel, rocks and wood. Record numbers of EPT families (15) were found at the Boyne-City Road site in 2008, which was a pleasant surprise as we did not expect so much diversity from such a small stream.

Jordan River: Grade = A

The pristine nature of the Jordan River watershed and the fact that there is little development or human activity along the river help preserve and protect stream water quality. The high quality waters of the Jordan are evident in our biological assessment, which shows great diversity in the macroinvertebrate community and impressively high numbers of sensitive families. Monitoring on the Jordan River began in 2007 at two sites and, as expected, diversity has been high at both the mid-stream site at the boat launch off of Webster Road (20, 12, 7) and downstream approaching the spreads and mouth at Fair Road (22, 11, 6). The Jordan River is currently the record holder for the greatest number of sensitive families with a total of 11 found at the Webster Road site in the fall of 2009 – ya!

Kimberly Creek: Grade = A

Kimberly Creek is located to the east of Indian River, flowing through the small community of Afton before merging with the Little Pigeon River. Two sites have been monitored on Kimberly Creek since 2005 to gauge any impacts from residential, agricultural, and mining activity. Upstream at Montgomery Road (22, 8, 4), the channel is only a few feet across and exposed due to residential development, but high diversity persists. Between upstream and downstream sites, the stream flows through agricultural lands and a mining operation, but macroinvertebrate populations at Quarry Road (22, 9, 5) remain quite diverse.

Milligan Creek: Grade = A-

Milligan Creek is a tributary of the Black River near the village of Tower on M68. Two sites are currently monitored: upstream at M68 (24, 12, 7) and downstream at Waveland Road (15, 8, 5). While we only have a couple years of data, it appears that diversity is exceptional at the M68 site and that there is a good deal of sensitive family diversity at Waveland Road. As the Milligan Creek team gains more experience, we anticipate scores increasing.

Mullett Creek: Grade = A-

Mullett Creek flows into the northwest side of Mullett Lake and has been monitored consistently since 2005. Similar to Horton Creek, the two sites monitored are very different in terms of flow velocity. Volunteers monitor upstream at Crump Road (19, 10, 5), where the narrow channel winds through dense woods, water flow is fast, and substrate is variable with a mix of sand, gravel, rock and wood. At the downstream site near the creek mouth on M27 (22, 6, 1), Mullett Creek is much wider, exposed to the sun, and flows slowly through silt-bottom, riparian wetland areas before flowing into the lake. In spite of the physical and ecological differences between sites, the total diversity is approximately the same. However, sensitive family diversity is much higher at the upstream site where flow is faster, waters cooler from shade, and where there is more variability in habitat.

Russian Creek: Grade = B

Russian Creek is a small feeder tributary of the Bear River that flows through the North Central Michigan College Natural Area. During the last few years, staff and students from the college have monitored the creek at one site near the mouth (16, 5, 2). Diversity is lower compared to most streams we monitor, but actually quite similar to the lower Bear River site at Mineral Well Park, which is in the same river system and the closest site monitored to Russian Creek. The low numbers in data thus far gathered from Russian Creek may simply be due to the small size of the creek, though human impacts have not been ruled out.

Stover Creek: Grade = C

Stover Creek holds the distinction of being the first stream to be included in our program; monitored since 2004. Although formerly monitoring three sites, volunteers now only monitor at the City of Charlevoix Cemetery on M66 (19, 7, 4) and downstream near the mouth at Irish Boat Shop (14, 2, 0). Interestingly, the cemetery site has a good amount of diversity in spite of the lack of natural vegetation along the streambank. There are many trees setback from the creek, which provide habitat and food as branches, leaves, and other debris drop into the stream. Additionally, the flow is fast and the creek bottom contains a good amount of rock and gravel. The downstream site at the mouth is one of the most impacted sites monitored in the program. Although only ½-mile away as the crow flies from the upstream site, diversity scores plummet near the mouth. Total diversity is not too bad, but not a single sensitive family has ever been found at the lower site. We are as of yet unsure of what is causing this dramatic decrease, but the stream does flow through and is impacted by urban development emanating from Charlevoix.

Tannery Creek: Grade = C

Tannery Creek is located just to the east of Petoskey and flows into Lake Michigan at Little Traverse Bay. Volunteer monitoring of Tannery Creek began in late 2007 at two sites. Upstream, the creek is monitored at Boyer Road (18, 8, 3), and downstream near the mouth behind the Glens shopping plaza (10, 3, 1). Similar to Stover Creek, the lower section of Tannery Creek is impacted by urban development. Stormwater, laden with pollutants from parking lots and roads and warmed by pavement, flushes directly into the stream instead of gradually filtering through soils into groundwater. After a rainstorm or snowmelt, unnaturally high volumes of polluted water flow into the creek in the lower section, eroding the stream channel, dislodging aquatic macroinvertebrates and carrying them downstream, suffocating fish and macroinvertebrates by clogging gills with sediments, raising water temperatures that leads to lower dissolved oxygen concentrations, and poisoning aquatic organisms with toxic substances.