# Rouge River Watershed
# 2022 Winter Stonefly Search

**www.therouge.org**

*Stoneflies are sensitive indicators of healthy streams. Unlike other insects, winter stoneflies develop into adult flies in the winter. The Winter Stonefly Search is part of Friends of the Rouge volunteer benthic macroinvertebrate monitoring program.*

Sixty-five people participated in Friends of the Rouge (FOTR)'s 2022 Winter Stonefly Search on January 22, 2022. The weather was on the cold side (as Stonefly Searches go) and many teams had to hack through ice to find running water. With covid rates soaring due to the Omicron variant, we continued having Team Leaders pick up equipment and meet their team in the field rather than everyone meeting together in an indoor facility. Without the opportunity for an introduction in person, we hosted a virtual "Stonefly Primer" to prepare new volunteers and refresh veteran volunteers. Held on January 13, we had 34 attendees and the assistance of veteran team leader Sue Thompson.

This report contains data for 33 sites. Twenty-three sites were sampled by 12 teams during the Stonefly Search on January 22. Ten additional sites were sampled by teams of volunteers, Wayne County Department of Public Services staff, FOTR staff and Sue Thompson. FOTR staff included Biological Monitoring Intern Amber Puckett who started in January. An additional sites – Ton2 – was tested for salt but not searched for stoneflies.

Stoneflies were found at thirteen of the thirty-three sites (39%) (map and Table 1). All were found on the Middle, Lower and Upper branches. All sites had slender winter stoneflies (Capnids-family Capniidae) and three sites also had Perlodids (family Perlodidae).

## Lower Branch

Ten sites were sampled on the Lower Branch: four on Fellows Creek, three on Fowler Creek and two on the main branch of the Lower. Three of the ten (30%) sites had stoneflies, and all were slender winter stoneflies (Capnids). This included one site on each tributary and the Lower: Fellows Creek (LR-9), Fowler Creek (Fowl5) and the main Lower branch (LR-8).

## Middle Branch

Eighteen sites were sampled on the Middle Branch: ten on Johnson Creek, four on Tonquish Creek, and four on the Middle branch. Eight (44%) of the sites had stoneflies and ALL were on the Johnson Creek. All sites had slender winter stoneflies (Capnids) and three sites (John2, John3, John7) also had Perlodids. The Middle Branch has the largest diversity of macroinvertebrates in the watershed and most of the stoneflies we find in the Rouge are in the Johnson Creek. It was disappointing not to find any stoneflies in Tonquish Creek this year. But it is also concerning that all the Johnson Creek sites with stoneflies were upstream of Six Mile Road.

## Upper Branch

Five Upper Branch sites were sampled including two sites on Minnow Pond Creek, one site on Bell Creek and two on the main Upper branch. Stoneflies were found at two sites (40%) - Min4, and Up1. Both sites had slender winter stoneflies (Capnids). Stoneflies are very rarely found in the Upper Branch.

**Winter Salt Watch**

WINTER SALT WATCH

FOTR Stonefly Search teams have been testing sites for chloride or road salt since 2020 through the Izaak Walton League's Winter Salt Watch program. In 2019, recognizing that chloride and sulfate can have significant harmful effects on aquatic life, Michigan's Department of Environment, Great Lakes, and Energy developed water quality values for chloride and sulfate. For chloride, the limit is 320 mg/L (ppm) for acute (short-term) impacts and 150 mg/L (ppm) for chronic (long-term) impacts.

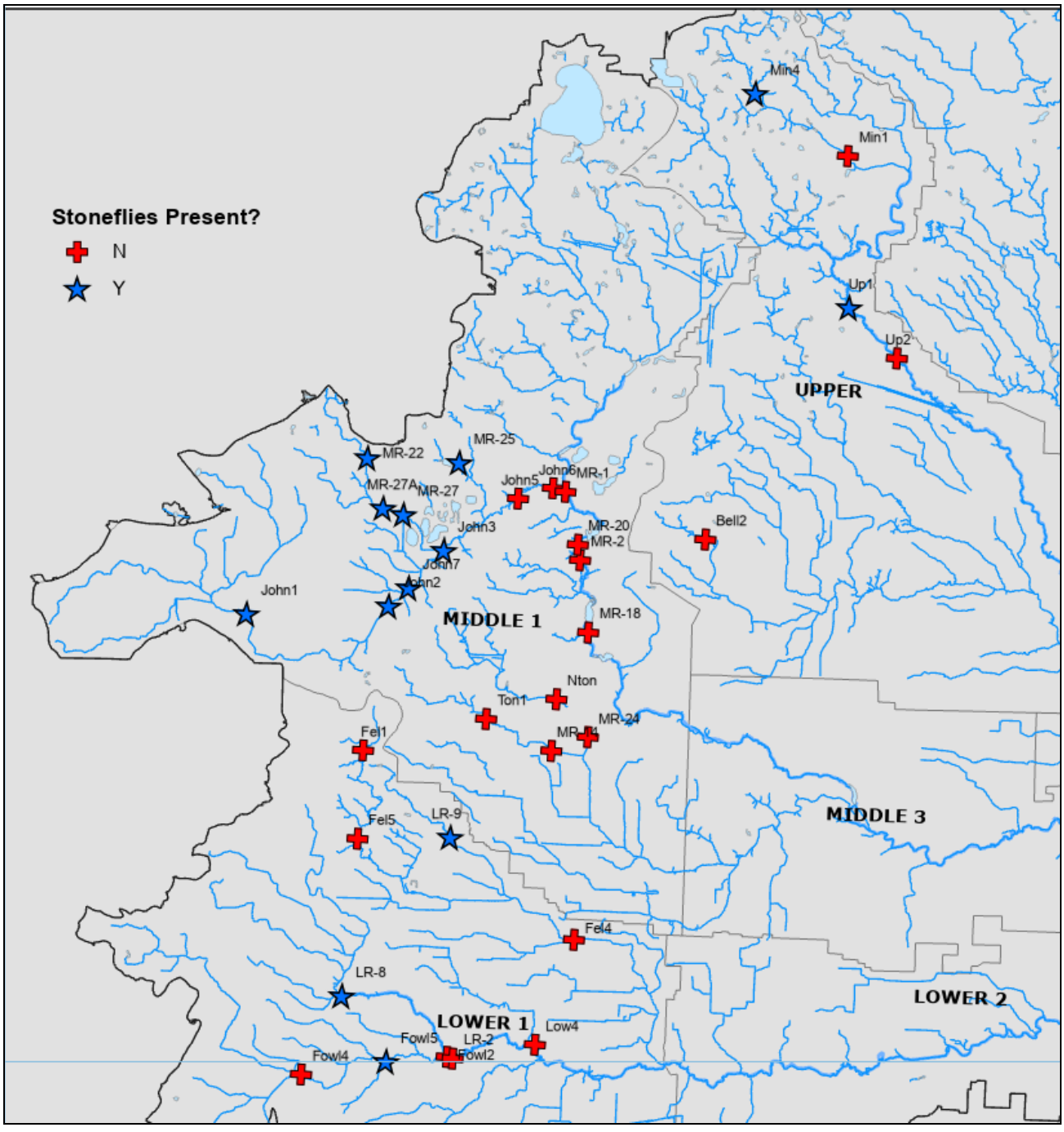
Seven of our Stonefly Search sites were above EGLE's limit of 320 ppm (plus an additional site – Ton2 that we only tested for salt) with some well over the limit on the test strips. Eight were above 150 ppm (Table 1, Map 2). Sites in highly urbanized areas like the Tonquish Creek in the city of Plymouth and Bell Creek on the Schoolcraft College campus are high most likely due to road runoff. On the Middle branch, chloride levels generally rise in a downstream direction, as would be expected as stormwater inputs and urbanization increase. Two headwater stream sites that are neither in urban areas and not downstream - John1 and Fowl4 (see map 2) had elevated levels. We double-checked the Fowl4 site because all the nearby sites on Fowler Creek were low. Washtenaw County traced it to a road roundabout that drains next to the creek.

The Upper branch sites are somewhat of an anomaly as all Upper branch sites have had consistent high levels all three years we have tested them for chloride. Sampling by EGLE showed similarly high levels in the Upper branch. We will continue to monitor and investigate this.

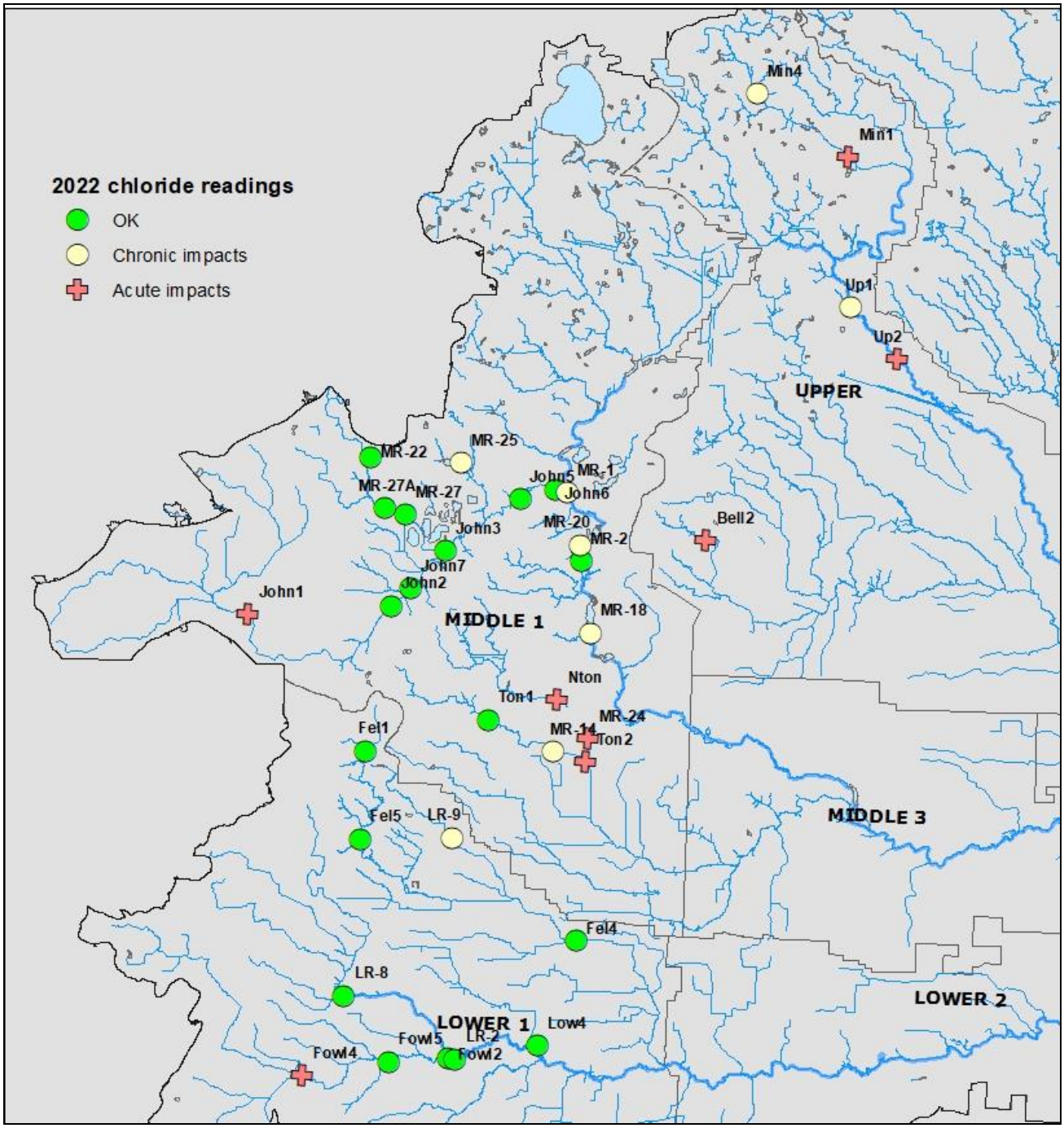
Road salt helps to keep us safe but can cause serious damage to water quality. More information on the Winter Salt Walt program can be found here: https://www.iwla.org/water/stream-monitoring/winter-salt-watch. Residents can sign up for Salt Watch on their own and receive free test strips to test sites during the winter and are encouraged to do so. Results are posted on the Izaak Walton League's Salt Watch site (https://www.iwla.org/water/stream-monitoring/winter-salt-watch/results)

Thank you to all the volunteers, Team Leaders, Wayne County, and Sue Thompson for additional sampling. The Winter Stonefly Search is part of the Friends of the Rouge long-term volunteer monitoring program and is funded through the Alliance of Rouge Communities, Washtenaw County Water Resources Commission, the Erb Family Foundation and individual donations.

**Map 1: 2022 Stonefly Search Results**



**Map 2: 2022 Chloride Readings**



| Table 1: Stonefly and Chloride Findings | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Branch | Stream Name | FIELDID | Site Location | sampling date | Stoneflies? | Stonefly Family | 2022 Chloride, ppm | 2021 Chloride, ppm | 2020 Chloride, ppm |
| Lower | Fellows Creek | Fel1 | Top of Hill Ct | 1/22/2022 | N | | 91 | 86 | 56 |
| Lower | Fellows Creek | Fel5 | Warren Ridge | 1/22/2022 | N | | 91 | 43 | 46 |
| Lower | Fellows Creek | LR-9 | Fellows Beck Warren | 1/19/2022 | Y | Capnids | 153 | | 91 |
| Lower | Fellows Creek | Fel4 | Flodin Pk | 1/19/2022 | N | | 140 | | |
| Lower | Fowler Creek | Fowl4 | Ridge Rd S of Geddes | 1/22/2022 | N | | 650 | | 46 |
| Lower | Fowler Creek | Fowl5 | Fowler Denton | 1/22/2022 | Y | Capnids | 101 | | |
| Lower | Fowler Creek | Fowl2 | Fowler Beck | 1/31/2022 | N | | 55 | 86 | |
| Lower | Lower Rouge | LR-8 | Ridge Proctor | 1/22/2022 | Y | Capnids | 91 | | |
| Lower | Lower Rouge | LR-2 | WTUA | 1/31/2022 | N | | 124 | | |
| Lower | Lower Rouge | Low4 | Sheldon Rd | 1/22/2022 | N | | 130 | 145 | |
| Middle | Johnson Creek | John1 | 5M Salem | 1/22/2022 | Y | Capnids | 342 | 86 | 30 |
| Middle | Johnson Creek | John2 | 5M NV | 1/22/2022 | Y | Capnids, Perlodids | 40 | 108 | 25 |
| Middle | Johnson Creek | John3 | 6M NV | 1/22/2022 | Y | Capnids, Perlodids | 91 | 97 | 56 |
| Middle | Johnson Creek | John7 | Arcadia | 1/22/2022 | Y | Capnids, Perlodids | 81 | 97 | 46 |
| Middle | Johnson Creek | MR-22 | Maybury south | 1/16/2022 | Y | Capnids | 140 | 203 | |
| Middle | Johnson Creek | MR-27A | Florissant Dr. | 1/23/2022 | Y | Capnids | 114 | | |
| Middle | Johnson Creek | MR-27 | Ridge | 1/16/2022 | Y | Capnids | 114 | 174 | |
| Middle | Johnson Creek | MR-25 | Maybury East | 1/17/2022 | Y | Capnids | 182 | | |
| Middle | Johnson Creek | John5 | Fish Hatchery Pk | 1/22/2022 | N | | 101 | | |
| Middle | Johnson Creek | John6 | Hines | 1/22/2022 | N | | 91 | 114 | |
| Middle | Tonquish Creek | Ton1 | Plym Twp Pk | 1/22/2022 | N | | 86 | 222 | 187 |
| Middle | Tonquish Creek | Nton | S Evergreen St | 1/22/2022 | N | | 615 | | |
| Middle | Tonquish Creek | MR-14 | Smith Elem | 1/23/2022 | N | | 153 | | |
| Middle | Tonquish Creek | MR-24 | Lion's Pk | 1/23/2022 | N | | 632 | | |
| Middle | Tonquish Creek | Ton2 | Ann Arbor Road | 1/23/22 | Not searched | | 632 | | |
| Middle | Middle Rouge | MR-1 | Northville Rec W | 1/22/2022 | N | | 277 | | |
| Middle | Middle Rouge | MR-20 | Waterford Bd | 1/22/2022 | N | | 258 | | |
| Middle | Middle Rouge | MR-2 | Reservoir Rd | 1/22/2022 | N | | 140 | 370 | |
| Middle | Middle Rouge | MR-18 | Springbrook Rec | 1/22/2022 | N | | 250 | 346 | |
| Upper | Bell Branch | Bell2 | Schoolcraft College | 1/22/2022 | N | | 450 | 602 | |
| Upper | Minnow Pond | Min4 | 14 Mile | 1/22/2022 | Y | Capnids | 155 | 455 | 335 |
| Upper | Minnow Pond | Min1 | Minnow 13 M | 1/22/2022 | N | | 366 | | |
| Upper | Upper Rouge | Up1 | Heritage Park | 1/22/2022 | Y | Capnids | 310 | 455 | |
| Upper | Upper Rouge | Up2 | Shiawasee Park | 1/22/2022 | N | | 360 | 487 | |

**Check out photos of the 2022 Stonefly Search here:**
**https://photos.app.goo.gl/g7HAzgmnsaj2baPR9**

## We need you!

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Volunteers needed to help look for bugs in Rouge streams

Want to get more involved? Train to be a Team Leader – bank person or collector
**Team Leader Training**: **virtual session followed by field training**
**Field Training Sat. April 9, 2022 9am-12pm**

**Register for both at therouge.org/bug-hunt-events-and-trainings**

More info: spetrella@therouge.org or call 734 927-4904

# Rouge River Watershed
# 2023 Winter Stonefly Search

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Ninety-nine people participated in Friends of the Rouge (FOTR)'s 2023 Winter Stonefly Search on January 21, 2023. To prepare participants, a virtual "Stonefly Primer" was held on Jan. 12 with 30 participants. The weather on January 21 was warm for winter (high 34). No ice picks were needed to crack through ice like in past years but over an inch of rain the day before led FOTR to move some of the teams to sites upstream to avoid fast high water.

*Stoneflies are sensitive indicators of healthy streams. Unlike other insects, winter stoneflies develop into adult flies in the winter. The Winter Stonefly Search is part of Friends of the Rouge volunteer benthic macroinvertebrate monitoring program.*

This report contains data for 41 sites (See Table 1 and map 1). Twenty-nine sites were sampled by 15 teams during the Stonefly Search on January 21. Twelve additional sites were sampled by teams of volunteers, Wayne County Department of Public Services staff, FOTR staff and Sue Thompson. Two additional sites were tested for salt but not searched for stoneflies.

Stoneflies were found at fifteen of the forty-one sites (37%) (map 1 and Table 1). All were found on the Lower, Middle and Upper branches. All but three of the sites had slender winter stoneflies (Capnids-family Capniidae). Two sites had Perlodids (family Perlodidae) and one site had the family broadback stoneflies (family Taeniopterygidae).

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## Lower Branch

Team 12 at Fowler Creek

Twelve sites were sampled on the Lower Branch: six on Fellows Creek, four on Fowler Creek and two on the main branch of the Lower. Six of the twelve (50%) sites had stoneflies, and all were slender winter stoneflies (Capnids). This included two on the Fellows branch (LR-9, Fel6), three on Fowler Creek (Fowl1, Fowl4, Fowl5) and one on the Lower branch (LR-8). Fowl1 had a record number of stoneflies at 123!

Team 2 at Fowler Creek

## Middle Branch

Twenty sites were sampled on the Middle Branch: eleven on Johnson Creek, four on Tonquish Creek, one on Bishop Creek, one on the Walled Lake Branch and three on the Middle branch. Eight (40%) of the sites had stoneflies and ALL were on the Johnson Creek.


Team 13 at Johnson Creek


Team 3 at Johnson Creek

All but three sites had slender winter stoneflies (Capnids). John8 and MR-22 had a Perlodid and John1 had Taeniopterygidae All of the stoneflies in the Middle were in the Johnson Creek and all were upstream of or at Six Mile Road.

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## Upper Branch

Seven Upper Branch sites were sampled including one site on Minnow Pond Creek, three sites on Bell Creek, two sites on Seeley Creek and one on the main Upper branch. Stoneflies were found at one site (14%) - Min4- and all were slender winter stoneflies (Capnids). Stoneflies are very rarely found in the Upper Branch.

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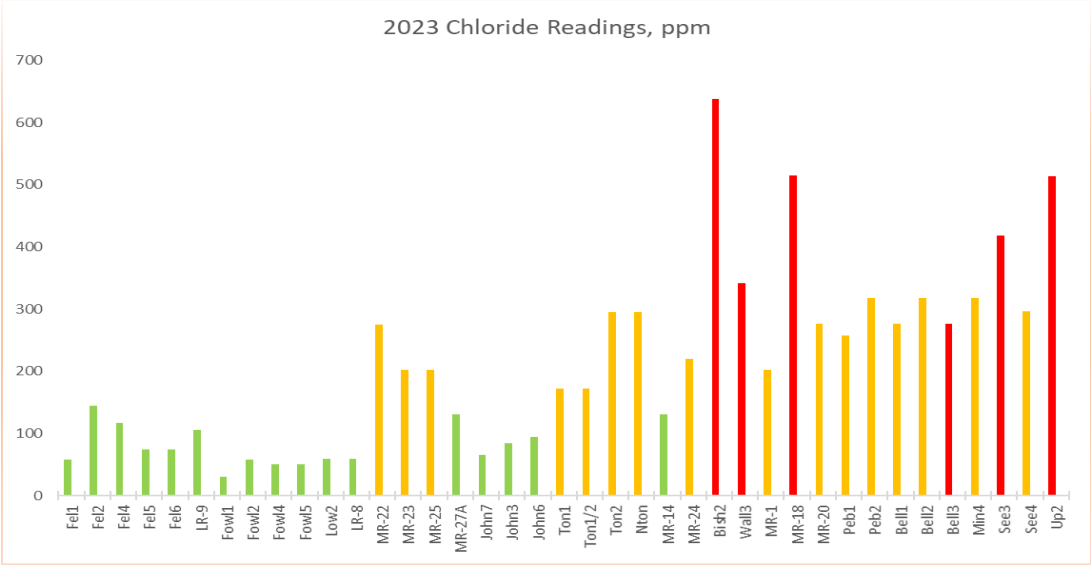
## Main Branch

Two Main branch tributary sites were sampled this year: Peb1 and Peb2. Neither had stoneflies.


Team 11 at Pebble Creek

FOTR Stonefly Search teams have been testing sites for road salt (chloride) since 2020 through the Izaak Walton League's Salt Watch program. Chloride is measured in parts per million (ppm). Levels above150 ppm cause long-term impacts to aquatic life in the stream. Levels above 320 ppm are toxic (cause acute or short-term impacts) to aquatic life.



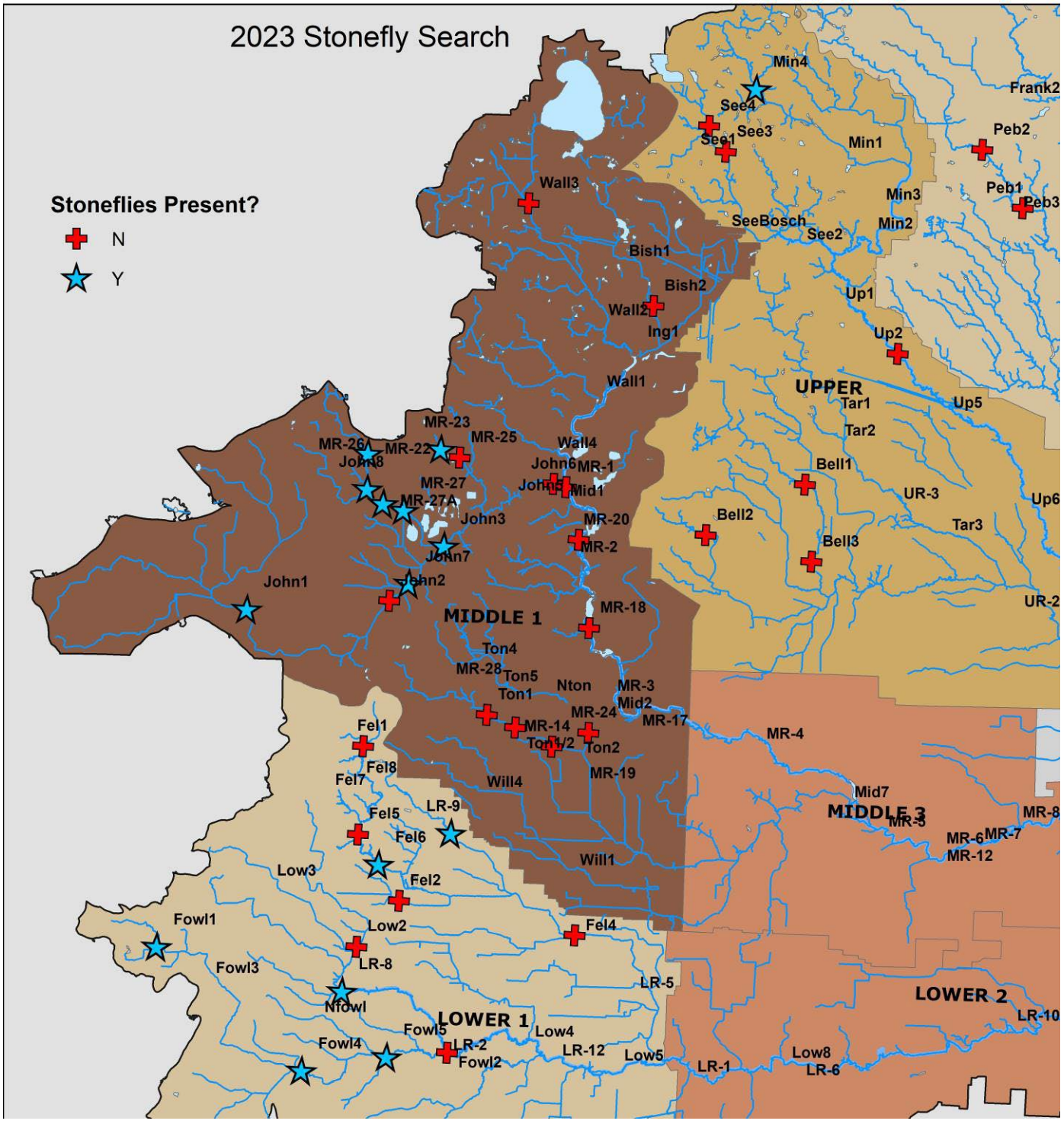

The 2023 chloride levels (see Chart above, Table 1 and map 2) varied by the branch. The Lower branch which, includes Fellows and Fowler Creeks, were all below 150 ppm. The Middle branch had levels above 150 ppm in the Sump Drain, a tributary of Johnson Creek (MR-22 to MR-27A), and the Tonquish Creek (Ton1. Ton1/2, Ton2, Nton). The Walled Lake branch tributaries were extremely high with Bishop Creek over 600 ppm and Walled Lake at 341 ppm. Further downstream on the Middle branch, levels were all above 150 ppm and above 320 ppm (515 ppm) at MR-18. On the Main branch, only Pebble Creek was tested and both sites were above 150 ppm, in the range that causes long term impacts. All of the Upper branch sites were above 150 ppm and See3 and Up2 (Shiawassee Park) were both above 400 ppm, at the toxic level.

The state of Michigan Department of Great Lakes and Energy (EGLE) only recently developed guidelines for chloride and last year they identified two Rouge streams that exceeded the guidelines: Bishop Creek and the Upper branch. FOTR shares our data with the state and expect that the Middle branch will also be added to their "action" list. Once identified, a plan to reduce chloride will be developed but there is no timeline established as of yet.

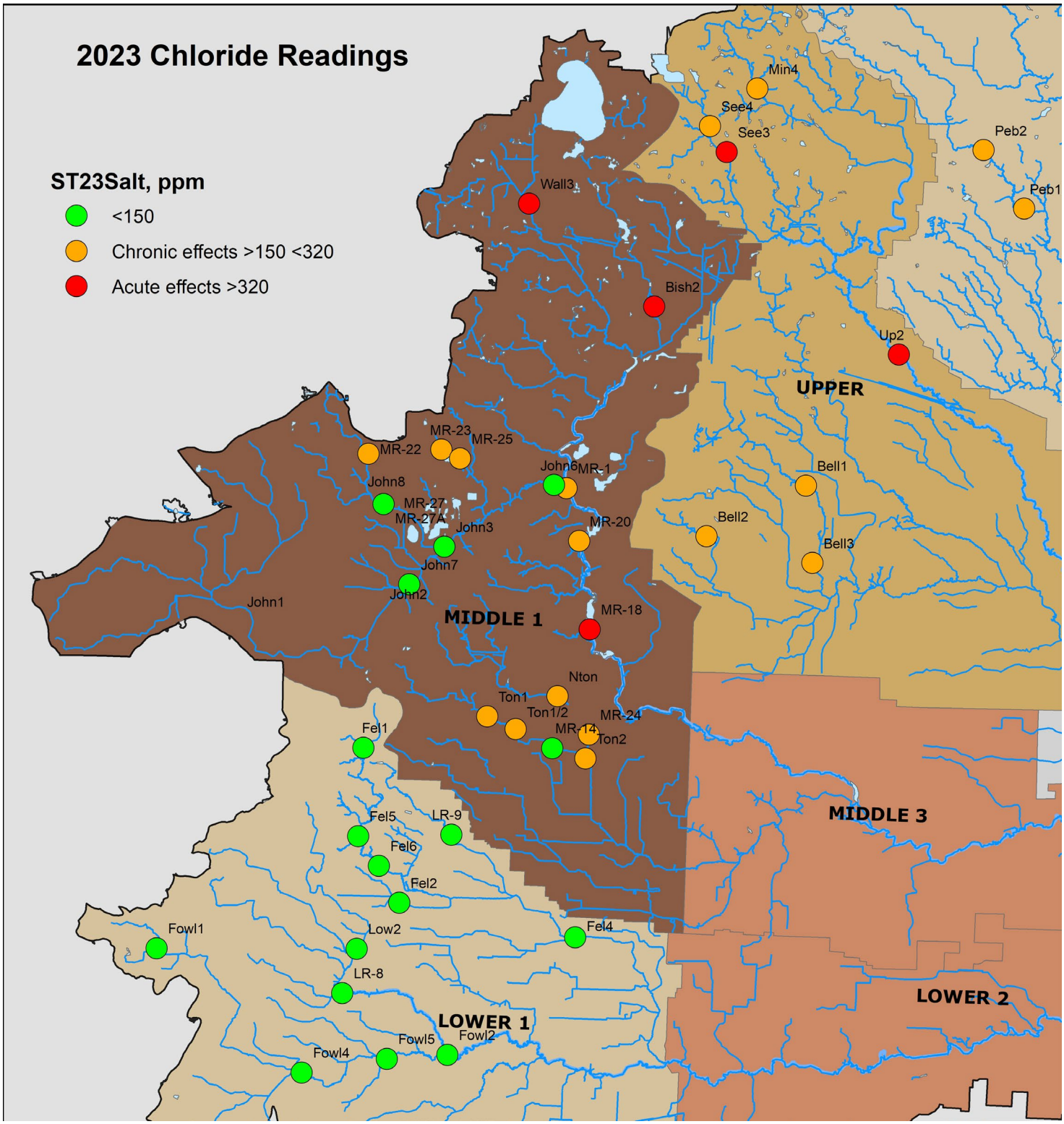
You can sign up for the Winter Salt Walt program and receive free test strips to test stream sites during the winter on your own and are encouraged to do so. Check out their map of the results and see how the Rouge compares to other areas. The Izaak Walton League also recently added testing for nitrates, which FOTR will be participating in this winter.

Thank you to all the volunteers, Team Leaders, Wayne County, and Sue Thompson for additional sampling. The Winter Stonefly Search is part of the Friends of the Rouge long-term volunteer monitoring program and is funded through the Alliance of Rouge Communities, Washtenaw County Water Resources Commission, the Erb Family Foundation, and individual donations.

| Table 1: 2023 Stonefly and Chloride Findings | | | | | | |
|---|---|---|---|---|---|---|
| BRANCH | Stream Name | FIELDID | Site Description | ST23 | ST23Family | Salt, ppm |
| Lower | Fellows Creek | Fel6 | Hanford | 1 | Capniidae | 75 |
| Lower | Fellows Creek | LR-9 | Fellows Beck Warren | 1 | Capniidae | 106 |
| Lower | Fellows Creek | Fel1 | Top of Hill Ct | 0 | | 58 |
| Lower | Fellows Creek | Fel2 | Vintage Valley | 0 | | 145 |
| Lower | Fellows Creek | Fel4 | Flodin Pk | 0 | | 117 |
| Lower | Fellows Creek | Fel5 | Warren Ridge | 0 | | 75 |
| Lower | Fowler Creek | Fowl1 | Prospect | 1 | Capniidae | 31 |
| Lower | Fowler Creek | Fowl4 | Ridge Rd S of Geddes | 1 | Capniidae | 50 |
| Lower | Fowler Creek | Fowl5 | Fowler Denton | 1 | Capniidae | 50 |
| Lower | Fowler Creek | Fowl2 | Fowler Beck | 0 | | 58 |
| Lower | Lower Rouge | LR-8 | Ridge Proctor | 1 | Capniidae | 60 |
| Lower | Lower Rouge | Low2 | Cherry Hill | 0 | | 60 |
| Main | Pebble Creek | Peb1 | Danvers Ct | 0 | | 257 |
| Main | Pebble Creek | Peb2 | Pebble 13 Mile | 0 | | 318 |
| Middle | Bishop Creek | Bish2 | Bishop Scarborough | 0 | | 637 |
| Middle | Johnson Creek | John1 | 5M Salem | 1 | Taeniopterygidae | |
| Middle | Johnson Creek | John3 | 6M NV | 1 | Capniidae | 85 |
| Middle | Johnson Creek | John7 | Arcadia | 1 | Capniidae | 66 |
| Middle | Johnson Creek | John8 | Maybury Angell | 1 | Perlodidae | |
| Middle | Johnson Creek | MR-22 | Maybury south | 1 | Capniidae, Perlodidae | 275 |
| Middle | Johnson Creek | MR-23 | Maybury north | 1 | Capniidae | 203 |
| Middle | Johnson Creek | MR-27 | Ridge | 1 | Capniidae | |
| Middle | Johnson Creek | MR-27A | Florissant Dr. | 1 | Capniidae | 131 |
| Middle | Johnson Creek | John2 | 5M NV | 0 | | |
| Middle | Johnson Creek | John6 | Hines | 0 | | 95 |
| Middle | Johnson Creek | MR-25 | Maybury East | 0 | | 203 |
| Middle | Middle Rouge | MR-1 | Northville Rec W | 0 | | 203 |
| Middle | Middle Rouge | MR-18 | Springbrook Rec | 0 | | 515 |
| Middle | Middle Rouge | MR-20 | Waterford Bd | 0 | | 276 |
| Middle | Tonquish Creek | MR-14 | Smith Elem | 0 | | 131 |
| Middle | Tonquish Creek | MR-24 | Lion's Pk | 0 | | 220 |
| Middle | Tonquish Creek | Ton1 | Plym Twp Pk | 0 | | 172 |
| Middle | Tonquish Creek | Ton1/2 | Canton Ctr Rd | 0 | | 172 |
| Middle | Tonquish Creek | Nton | S Evergreen St | N/S | | 295 |
| Middle | Tonquish Creek | Ton2 | Ann Arbor Rd | N/S | | 295 |
| Middle | Walled Lk Drainage | Wall3 | WL 12 M | 0 | | 341 |
| Upper | Bell Branch | Bell1 | Bicentennial Park | 0 | | 276 |
| Upper | Bell Branch | Bell2 | Schoolcraft College | 0 | | 318 |
| Upper | Bell Branch | Bell3 | Livonia 6 Mile | 0 | | 276 |
| Upper | Minnow Pond | Min4 | 14 Mile | 1 | Capniidae | 318 |
| Upper | Seeley Creek | See3 | Kennedy Ct | 0 | | 418 |
| Upper | Seeley Creek | See4 | Haggerty Rd | 0 | | 297 |
| Upper | Upper Rouge | Up2 | Shiawasee Park | 0 | | 513 |


2023 Stonefly Search
Stoneflies Present?
N
Y
Min4
Frank2
See4
See1
See3
Peb2
Min1
Peb1
Peb3
Min3
Wall3
SeeBosch
Min2
See2
Bish1
Bish2
Up1
Wall2
Ing1
Up2
Wall1
UPPER
Tar1
Up5
MR-23
MR-25
Tar2
MR-26
MR-22
Wall4
John8
John6
MR-1
Bell1
MR-27
John5
Mid1
UR-3
Up6
MR-27A
John3
Bell2
MR-20
Tar3
MR-2
Bell3
John7
John2
John1
UR-2
MR-18
MIDDLE 1
Ton4
MR-28
Ton5
Nton
MR-3
Ton1
Mid2
MR-24
MR-17
Fel1
MR-14
MR-4
Ton3
Ton2
Fel8
MR-19
Fel7
Will4
Mid7
LR-9
MIDDLE 3
MR-8
Fel5
MR-5
MR-7
Fel6
MR-6
MR-12
Will1
Low3
Fel2
Fowl1
Low2
Fel4
LR-8
Fowl3
LR-5
LOWER 2
Nfowl
LR-10
LOWER 1
Fowl5
Low4
Fowl4
LR-2
LR-12
Low5
Low8
Fowl2
LR-1
LR-6

**Map 2: 2023 Chloride Readings**



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More info: spetrella@therouge.org or call 734 927-4904