**MONITORING MONTANA WATERS FIELD GEAR GUIDE**

*Providing assistance with water monitoring efforts in Montana*

Recommended field gear, as well as optional gear and other parameter-specific gear is listed below. The recommended section includes items all groups will need to collect basic water quality sampling in the field, document the location of sites and take photos of field work. Optional field gear includes items needed for specific parameters that all groups may not sample for, and alternative items that can be used if needed (for example, less expensive pocket meters if groups cannot afford a YSI multiprobe). Please reach out to MMW with any questions or for advice on sampling gear.

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| **Recommended Gear** | **Analyte/Purpose** | **Source** |
| YSI Probe | Dissolved oxygen, pH, conductivity, turbidity, and more | [YSI ProQuatro,](https://www.ysi.com/proquatro) [YSI ProDSS,](https://www.ysi.com/ProDSS) or [YSI Pro Swap](https://www.ysi.com/proswap) (contact us for other options) |
| Measuring tape (100ft/30m) | Site measurements | [Forestry Suppliers](https://www.forestry-suppliers.com/p/39970/56536/keson-english/metric-open-reel-fiberglass-tapes) |
| Wash bottle (16 oz) | Cleaning sampling gear | [Cole-Parmer](https://www.coleparmer.com/p/cole-parmer-essentials-safety-wash-bottles-ldpe-vented/3829?Ntt=Wash+Bottle) |
| Tweezers/forceps | Filter handling | [Forestry Suppliers](https://www.forestry-suppliers.com/p/53781/53021/forceps) |
| Colored tape (solid color) | Labeling | [Cole-Parmer](https://www.coleparmer.com/p/cole-parmer-essentials-write-on-colored-tape/54602) |
| Graduated Cylinders (50 mL, 100 mL, and 250 mL) | Measuring sample volumes | [Cole-Parmer](https://www.coleparmer.com/p/cole-parmer-essentials-economical-polypropylene-graduated-cylinder/4004?N=868198161+1668307101+1295300172) |
| GPS | Data collection point recording | [Forestry Suppliers](https://www.forestry-suppliers.com/Search?stext=GPS) |
| Syringe (60 mL) | Filtering raw samples | [Cole-Parmer](https://www.coleparmer.com/p/cole-parmer-essentials-clear-disposable-syringes/73351?Ntt=Syringe) |
| Filters (0.45 µm) | Filtering raw samples | [Cole-Parmer](https://www.coleparmer.com/i/cole-parmer-essentials-ptfe-syringe-filters-non-sterile-barbed-threaded-0-45-m-50-mm-dia-10-pk/0291533) |
| Rite-in-rain Waterproof Notebook | Field notes | [Forestry Suppliers](https://www.forestry-suppliers.com/p/49319/57251/rite-in-rain-spiral-notebooks) |
| Waterproof Digital Camera | Field photos | [Amazon](https://www.amazon.com/Fujifilm-FinePix-XP140-Waterproof-Digital/dp/B07NJR4LV5/ref=sr_1_4?dchild=1&keywords=fujifilm%2Bwaterproof%2Bcamera&qid=1613577129&s=electronics&sr=1-4&th=1) |

\*All coolers, sampling bottles, filters, and syringes are provided by FLBS FRL to groups for each sampling session

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| **Optional/Parameter-Specific Gear** | **Analyte/Purpose** | **Source** |
| E.coli presence/absence test | E.coli | [Hach](https://www.hach.com/p-presenceabsence-test-12pk/2323212) |
| Hach Turbidimeter | Turbidity (streams) | [Hach](https://www.hach.com/p-2100q-portable-turbidimeter/2100Q01) |
| Oakton EC pocket meter | Electrical Conductivity/TDS | [Cole-Parmer](https://www.coleparmer.com/i/oakton-ecotestr-cts1-pocket-conductivity-salinity-and-tds-meter/3546211?PubID=UX&persist=true&ip=no&gclid=CjwKCAiAmrOBBhA0EiwArn3mfPDApS7PzfedAK2x7C5j2BKi7XYQcOAfYLuFTJM7LqqNfgXzT0w82xoCYCYQAvD_BwE) |
| Oakton pH pocket meter | pH | [Cole-Parmer](https://www.coleparmer.com/i/oakton-ecotestr-ph-2-pocket-ph-meter/3542301) |
| Secchi discs | Turbidity (lakes) | [Forestry Suppliers](https://www.forestry-suppliers.com/p/77179/67171/fieldmaster-student-secchi-disc) |
| Petri dishes | Chlorophyll-α | [Cole-Parmer](https://www.coleparmer.com/p/advantec-disposable-50-mm-sterile-petri-dishes/42937) |
| Vacuum handpump | Chlorophyll-α | [Fisher Scientific](https://www.fishersci.com/shop/products/nalgene-repairable-hand-operated-pvc-vacuum-pumps-gauge/13874612a) |
| Nalgene filtering unit | Chlorophyll-α | [Cole-Parmer](https://www.coleparmer.com/i/thermo-scientific-nalgene-300-4000-polysulfone-filter-holder-and-receiver-250-250-ml/0673050) |
| Glass fiber filters (0.70 µm) | Chlorophyll-α | [Cole-Parmer](https://www.coleparmer.com/i/whatman-1825-047-gf-f-glass-microfiber-filters-0-7um-4-7cm-100-box/0664891) |
| Aluminum tray | Work surface in the field | [Forestry Suppliers](https://www.forestry-suppliers.com/p/53864/52991/dissecting-pans) |
| Swing Sampler | Extended reach collection | [Forestry Suppliers](https://www.forestry-suppliers.com/p/53920/32281/swing-sampler) |
| Flow meter | Stream flow/velocity | [Forestry Supplier](https://www.forestry-suppliers.com/p/95000/34011/watermark-usgs-model-6200-aa-current-meter) |

**Easily Obtainable Field Gear**

Aluminum foil

Sharpie

Pens/pencils

**Other Field Gear Sources**

Montana State University Extension Volunteer Monitoring assistance program has a [Gear Loan program](https://waterquality.montana.edu/vol-mon/gear_loan/index.html). It may be possible to borrow equipment for sampling from them, however the gear is only available for short term loan and priority is given to groups based on the order requests are received. Their Gear Loan program also lists some additional items used for substrate surveys and determining solar radiation inputs to sites.