

First Annual

# Mountains to Sea Trail 100 Endurance Run



**2023 Race Information Packet**  
**Race Date: Saturday March 18th – Sunday, March 19th 2023**

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**Race start times**

- 100 mile - 0600 (32 hour time limit)
- 50 mile - 0600
- 50K - 0700
- 10 mile - 0730

## Character and Philosophy of the Run

Welcome to the Mountains to Sea Trail 100! We are delighted that you have chosen to participate in this scenic and iconic single track trail race in Raleigh/Durham NC. The official day of Spring is right around the corner which means the trees have just started to get leaves back on them, the animals are now out and about, and the flowers are beginning to bloom. The runners will have a great view of Falls Lake and many creek crossings. The trail should be beautiful. We wish you all the best, and we hope you enjoy your visit to The Mountains to Sea Trail!

This Participant Guide contains important information about the race that all runners should read and understand. Topics discussed here include some of the risks inherent in trail running, notes about the terrain and local wildlife, all the race rules as well as crew and pacer information, notes about aid stations, and the pre-race agenda. Much of the information contained in this document is available on the race website as individual pages, but all the pertinent information you will need to know about the Mountains to Sea Trail is in this Participant Guide. Please take the time to read this guide thoroughly.

The Mountains to Sea Trail 100 Mile Endurance Run is designed for speed and agility. We want to encourage ultrarunners to increase their athleticism and is a great course for ultrarunners to train for many upcoming Ultraruns. Such races like; the Massanutten 100, Western States 100, Leadville 100, and Wasatch 100 runs. For the 2023 race, the cutoff will be based on chip times at the starting line.

Packet Pick-up will be at Runologie (1614 Automotive Way, Raleigh, NC 27604). Updates on all race details will be emailed out 2 weeks prior to the race date. The Race Briefing will be virtual this year. Runners will be provided with link to join/view briefing. The race headquarters and start/finish will be located at Rolling View Community Center in Rolling View State Recreation Area & Campground, located at 4201 Baptist Road in Durham, NC.

## About the Mountains to Sea Trail

<https://mountainstoseatrail.org/the-trail/>

“The Mountains-to-Sea Trail is a simple footpath stretching almost 1,200 miles across North Carolina from Clingmans Dome in the Great Smoky Mountains to Jockey’s Ridge on the Outer Banks.

More than just a walk in the woods, the trail traces the diversity that is North Carolina. Experience ancient mountains and small Piedmont farms, coastal swamps and colonial towns, changing textile villages and barrier islands. Almost 700 miles of footpath are now completed. With temporary routes on backroads and bicycle paths, hikers can now follow the trail on an adventure across North Carolina. Like the best gifts passed from one generation to the next, the trail is being made by hand. Each year, volunteers devote

thousands of hours to planning and blazing the trail across the state step-by-step, milestone-by-milestone. You can help in creating this state treasure. Learn how you can become part of this trail blazing effort as a member of Friends of the Mountains-to-Sea Trail and as a volunteer”.

### **FUN FACTS ABOUT THE MST**

- Was proposed in 1977 and added to the state park system in 2000
- The MST is North Carolina’s state trail and longest marked footpath
- Takes approximately 2,112,000 footsteps to complete
- Climbs both the tallest mountain peak and the highest sand dune in the Eastern United States
- Highest elevation: 6,684 feet — on Mt. Mitchell
- Lowest elevation: sea level — Cape Hatteras National Seashore
- Passes through 37 counties
- Passes through four national parks and two national wildlife refuges
- Connects to ten state parks
- Meanders through three national forests
- Passes three lighthouses, including the nation’s tallest
- Includes two ferry rides
- 800+ volunteers worked more than 36,000 hours to build and maintain the trail in 2017
- The Mountains-to-Sea Trail showcases the diversity of North Carolina’s natural beauty from the Appalachian Mountains to the Atlantic Ocean

## **Course Descriptions**

This course is a double out and back. Runners will begin at The Rolling View Parking Lot and head Northwest to Redwood/Tom Clark @15 miles and turn around to head back to The Rolling View Parking Lot. Runners will continue through the Rolling View Aid Station and head East toward Raven Ridge Rd. @65.5 miles and then will turn around and head back to The Rolling View aid station for the finish of the race @101.6 miles. Along the scenic course, runners will experience beautiful views of Falls Lake, often running right beside the lake. There are several bridges that the runners will be crossing over throughout the trail. There are several portions of the course that runners will be roadside running briefly and road crossings. PLEASE BE AWARE AND FOLLOW PRECAUTIONS SET UP BY THE RACE COMMITTEE.

## Aid Stations

**Aid stations have changed slightly.**

**PLEASE NOTE THESE MILEAGE NUMBERS ARE APPROXIMATE AND THERE ARE PLENTY OF AID STATIONS FOR REFUELING.**

Rolling View Aid Station (start/finish) - **DROP BAG**  
4201 Baptist Road in Durham, NC

Little Lick Creek Aid (5 and 25)  
**10 mile race turnaround - liquid and gels only**

Hereford Rd. Aid Station (11.1 and 21)  
6512 Cheek Rd, Durham, NC 27704

Redwood/Tom Clark Aid Station #3 (15) - **DROP BAG**  
Intersection of Redwood and Tom Clark Roads in Oak Grove, NC

Boyce Mill Aid Station (33.2 & 95.3)  
13000-13510 Boyce Mill Rd, Durham, NC 27703

Hwy 50 Aid Station (41 and 89) - **DROP BAG**  
**50 mile turnaround**  
13304 Creedmoor Rd, Wake Forest, NC 27587

Shinleaf Aid Station (45.2 and 85.8)  
**Water and gels only - Limited volunteers due to lack of night access**  
13708 New Light Rd, Wake Forest, NC 27587

Blue Jay Point (50 and 80ish)  
**Water and gels only - Limited volunteers due to lack of night access**

BayLeaf Aid Station (55 and 78)  
12624-12700 Bayleaf Church Rd, Raleigh, NC 27614

Red Fox Run Aid Station (60 and 70)  
**Liquid and gels only**  
Dead end of Possum Track Rd.

Honeycutt Aid Station #9 (65.5) - **DROP BAG**  
11724 Raven Ridge Rd, Raleigh, NC 27614

PLEASE LET US KNOW IF YOU HAVE ANY QUESTIONS

Aid Stations: We have incredible volunteers who work at our aid stations along the course, and we believe that support for all runners is exceptional. The aid stations will be

well stocked with fluids and a wide variety of food. Fluids generally available will be water, Hammer Heed, Coke or Pepsi, Mountain Dew and ginger ale, and coffee will be offered at selected aid stations. Endurolytes will be available at select aid stations. Food will consist of orange slices, bananas, assorted cookies, trail mix, bite size candy bars, peanut butter and jelly sandwiches, ham and cheese sandwiches, turkey and cheese sandwiches, boiled potatoes with sea salt and small pretzels. **Various Medical kits will also be available at EVERY AID STATION**

Aid Station Stock\* \*Check back prior to race day in case this changes.

## Runner Requirements

For 2023, each runner must wear a mask and use hand sanitizer at the race headquarters – and will be required to do the same as they enter each aid station.

- Each runner is expected to be courteous to everyone: aid station volunteers, crews, other runners, squirrels, etc.
- Each runner must ensure, verbally, that the scorer at each aid station has recorded his or her number. Help the timers by shouting your number!
- All runners are responsible for the behavior and actions of their crew members.
- Littering beyond 300 feet from aid stations is prohibited and is grounds for disqualification and Jail time
- It is each runner's responsibility to ensure that his or her number is visible from the front.
- Runners and crews are expected to be familiar with and comply with all the information contained in the Race Information Packet and our website. Please respect the effort of all the runners and stay out of the way. Crew members are allowed on the course to pace their runner after reaching mile 41 Hwy 50 Aid Station and may continue to pace their runner for the entirety of the race. Crew members may not use bicycles to accompany or crew runners on the course at any time. Doing so will result in a runner disqualification.

## Drop Bags

Drop Bags will be allowed at Rolling View AS ( start/ finish line and mile 30 ), Redwood/ Tom Clark AS (mile 15), Hwy 50 AS (miles 41 & 89), and Honeycutt AS (mile 65.5). Please only use small or medium size bags, and no coolers. Drop bags must be delivered to the Race Headquarters, on race day, no later than 4:50 am. All drop bags will be delivered back to the start of the race after all participating runners have cleared cutoff times and or drop bag aid stations. Runners or crew may drive to the aid stations to retrieve drop bags. To help make drop bag retrieval as efficient as possible, we ask that you label all drop bags with your race number and name. Race Numbers will be available on the website no later than a week before race day. If you are unable to label your drop bag prior to coming to the race, duct tape and markers will be available at registration on Friday and at the drop bag truck on Saturday morning.

## Trail Blazes and Road Crossings

Runner safety is our top priority and FreyHealth24 has made extra precautions to ensure the safety of the volunteers, runners, pacers and spectators. Please pay close attention to signs that are posted and volunteers who are working the road crossings. As part of Ultrarunning, staying alert is one of the many obstacles that makes the racing so difficult. We do not take the safety of our runners lightly and expect the runners and pacers to abide by all precautions we have set up to ensure their safety. These roads can be extremely dangerous – we will have a volunteer stopping traffic –Trail Markings The majority of the MTS is marked with White Round Blazes however we will be putting reflective blazes placed on trees. In addition, you will see pink surveyors tape tied to tree branches marking intersections. Directional arrows and signs will be placed along the route. We make every effort to provide a well maintained and well-marked trail. Each runner is ultimately responsible for following the correct course.

What to Look for: Our large signs will be near roads you will be crossing or running alongside. On the trails, we have smaller signs that will be staked into the ground. These will accompany our flags and tape to point you in the right direction. When in doubt on the road, look for an arrow painted on the road. Signs get stolen, surveyor flags get torn down, but spray paint sticks around.

## Emergency access

We will have EMS on call for the entirety of the race. Medical kits will also be available at every aid station.

Wake County EMS  
Durham County EMS  
Red Cross Volunteers

## Runner Safety

Medical and Other Risks: Participation in this event is at the runner's own risk. Although we will place experienced medical personnel at various points along the race course, the inaccessibility of much of the trail may make it difficult or impossible for medical assistance to reach a runner in need immediately. Each runner is encouraged to consult with his or her own personal care physician regarding any physical or medical limitations before attempting this race. Medical staff will focus on how the runner feels and looks and his or her mental status at each medical aid station. It is important for each entrant to recognize the potential physical and mental stresses which may evolve from participation in this event. Runners may be subjected to extremes of heat and cold. They may develop hypothermia, hyperthermia, dehydration, hypoglycemia, hyponatremia, disorientation and mental and physical exhaustion. The race organizers and medical staff will do their best to work with runners, striving to ensure safe passage for all participants, but ultimately each runner must understand his or her own limitations. Adequate physical and mental conditioning prior to the Mountains to Sea Trail is extremely important. If you have not been able to prepare properly, do not attempt to run. Runners should appreciate the risks associated with participation in this event. Actions may have to be taken on

your behalf under extreme time constraints and adverse circumstances. We will make reasonable efforts to give assistance whenever possible. Ultimately and primarily you are in charge, and you are likely to be solely responsible for creating your own crisis that we must then respond to with race personnel. BE CAREFUL, BE RESPONSIBLE, AND DO NOT EXCEED YOUR OWN ABILITIES AND LIMITATIONS. IN THE EVENT THAT A RUNNER REQUIRES EMERGENCY EVACUATION BY GROUND OR HELICOPTER-AMBULANCE, THE RUNNER ASSUMES ALL FINANCIAL OBLIGATIONS ASSOCIATED WITH THIS SERVICE. THE RACE ORGANIZERS ARE NOT RESPONSIBLE FOR ANY DEBTS INCURRED INVOLVING THE EVACUATION OF ANY RUNNER, PACER, OR CREW MEMBER. Some of the main risks of the run, but certainly not all of them, are listed here. These should be understood and remembered by all runners, before and during the event. Please note that death can result from several of the risk conditions discussed below or from other aspects of participation in the Mountains to Sea Trail.

**Renal Shutdown** Cases of renal shutdown (acute renal failure) have been reported in other ultramarathons throughout the United States. This condition occurs from muscle tissue injury which causes the release of the protein myoglobin into the blood. Myoglobin is cleared from the blood by the kidneys and will look brownish-colored in the urine, but it is also a toxin to the kidneys and can cause acute vasospasm in the small arteries that supply the kidneys leading to renal shutdown as a result of rhabdomyolysis. Appropriate training is the key to prevention, and adequate hydration is key to both prevention and treatment of acute renal failure. This syndrome can be worsened by the use of NSAIDs. While usually reversible in healthy people, renal shutdown may cause permanent impairment of kidney function. It is crucial to continue hydrating for several days following the race, or until the urine is light yellow and of normal frequency.

**The Terrible Three** Starting the race with a pre-existing injury, low training miles due to the injury, and masking the injury during the race using anti-inflammatories such as ibuprofen could very well earn the runner a trip to the hospital with acute renal failure. If you are determined to start the race with an injury and low training miles, do not attempt to mask the pain with a pill. Let common sense be your guide and stop when your body tells you to stop.

**Heat Stroke or Hypothermia** Your muscles produce tremendous amounts of heat when running up and down hill. The faster the pace, the more heat is produced. In addition to the generation of heat from metabolism, environmental heat stress can be significant during the race. In very warm conditions, radiant heat off of rocks can be measured at over 100 degrees Fahrenheit. Heat stroke can cause death, kidney failure and brain damage. It is important that runners be aware of the symptoms of impending heat injury. These include but are not limited to the following: nausea, vomiting, headache, dizziness, faintness, irritability, lassitude, confusion, weakness, and rapid heart rate. Impending heat stroke may be (but is not always) preceded by a decrease in sweating and the appearance of goose bumps on the skin, especially over the chest. Heat stroke may progress from minimal symptoms to complete collapse in a very short period of time. A light-colored shirt and cap, particularly if kept wet during the race, can be helpful. If signs of heat exhaustion or heat stroke occur, we recommend rapid cooling by applying ice to the groin, neck and armpits.

**Low Blood Sodium (Hyponatremia)** Low blood sodium concentrations (hyponatremia) in ultramarathon runners have been associated with severe illness, requiring hospitalization. Deaths have occurred among participants of events shorter than 100 mile races. In general, individuals who are symptomatic with hyponatremia have been overhydrating – they have been ingesting exceedingly high amounts of fluids, especially water. Signs and symptoms of hyponatremia can include bloating, nausea, vomiting, headache, confusion, incoordination, dizziness and fatigue. If left untreated, hyponatremia may progress to seizures, pulmonary and cerebral edema, coma and death. The best way to avoid developing symptomatic hyponatremia is to not overhydrate.

**Wildlife Hazards** Copperheads, and other potentially hazardous forms of wildlife live in the area. Stay alert and be careful where you place your feet and hands, especially at night.

**Overuse Injuries** Innumerable overuse injuries can occur during an ultramarathon, especially in the knee and the ankle. Sprains and fractures can easily occur on these rough trails. Blisters can prevent many participants from finishing.

**Common Fatigue** One of the dangers you will encounter is fatigue. Fatigue, combined with the effects of dehydration, hypothermia, hyperthermia, hyponatremia, hypoglycemia, sleep deprivation and other debilitating conditions can produce disorientation, irrationality and hallucinations. Difficulty in Gaining Access to or Locating Injured Participants as most of the course is inaccessible by motor vehicle.

Many layers of safety precautions have been implemented by the race committee (including emergency services radio communications at all aid stations, rescue and emergency medical services personnel and medical professionals at many checkpoints). However, there is absolutely no assurance that aid or rescue assistance will arrive in time to give you effective assistance should you become sick, incapacitated or injured. Complications could arise if ambulances and other emergency vehicles have difficulty gaining access over remote roads jammed with crew vehicles, for example. **Getting Lost** The race organizers have made it a top priority to mark the Mountains to Sea Trail course so that no runners can get off route, but it is possible to lose the trail if you do not pay close attention. If you believe at any time that you may not be on the correct trail, do not attempt to find your way cross country. If you are sure of your route, backtrack to where you last saw a trail marker and try to find other markers showing the direction of the trail. If you cannot find your way, stay where you are, because wandering randomly will likely take you further off of the trail and reduce your chances of being found. If you become injured, exhausted or ill, it is crucial that you stay on the trail. The likelihood is much greater that you will be found on the trail either by another runner, or by search and rescue. If you feel dizzy, disoriented or confused, do not risk falling. Sit down or lie down on the trail until you recover or until you are found. An unconscious runner even a few feet off the trail could be impossible to find until it is too late. If you are assisted by individuals who are not associated with race management and you elect to leave the trail, you must notify the official at the nearest checkpoint of your decision to withdraw and surrender your bib number and timing tags.

**Performance Rules** These performance rules have been implemented to ensure that all individuals are provided equal and fair conditions for the race. The guiding principles for



these rules are as follows: be fair to all other runners on the trail, stay safe at all times, and respect the land around you – leave no trace. Violations of any of these rules may be grounds for disqualification from the event.

- There will be no unofficial runners.
  - Each runner's bib number must be worn prominently on the front of the body and must be easily visible at all times.
  - Runners must follow the marked trail at all times. Any runner who willfully leaves the marked race course (or who becomes lost) must return to the point of departure on foot before continuing.
  - Each runner must complete the entire course for which they are registered under his or her own power.
  - Trekking poles are allowed.
  - Except in the case of a medical emergency, runners may not accept aid or assistance in any form from anyone between checkpoints.
  - Runners may not store supplies of any kind along the trail.
  - Runners are responsible for the actions of their crews and pacers. Everyone associated with the run must comply with all of the performance rules as well as the crew and pacer rules contained herein.
  - Each runner must be checked in and checked out of all aid stations.
  - Monitoring of individual runners may be necessary at the discretion of medical personnel, and refusal by the runner to cooperate fully may result in disqualification.
  - Medical personnel have complete authority to evaluate the condition of any runner at any time and to determine whether the runner may continue along the course.
  - Injection of fluids or drugs (intravenous, intramuscular or subcutaneous) during the event may result in disqualification.
  - Littering of any kind is prohibited. Please respect the natural beauty of the trails and the right that everyone has to enjoy them. Littering during the race could threaten our continued use of these trails in the future.
  - Exercise good sportsmanship at all times during the event.
  - Smoking is prohibited at all aid stations and along the race course.
  - Medals are not given for runners who drop out of the race, no matter what distance they might have completed.
  - Any runner who is unable to finish the distance for which they have registered must personally inform race staff at the nearest aid station of his or her decision to withdraw, and the timing chip and bib number should be surrendered to race staff at that time.
  - The Mountains to Sea Trail is committed to keeping ultrarunning a clean and drug free sport.
  - Use of performance enhancing drugs or blood doping as defined by the USDA is prohibited. Race management reserves the right to disqualify a runner based upon competent evidence of such drug use. Any runner found to have taken a ride in a vehicle will be disqualified. This applies even to runners who might have gotten lost on the course.
- Rules for Support Crews
  - A crew member is a friend or family member who can help supply his or her runner with motivation, food, first aid and advice during the race.
  - Runners are responsible for the actions of their crew and pacer
  - Runners receiving aid from crews outside the designated crew access points are

subject to disqualification. Violation of this rule gives the runner an unfair advantage over runners who choose to not use a crew.

- Crew members must not block any vehicle and should park only in designated areas.
  - Crews are asked to keep headlights off and be as quiet as possible when parked, as other crew members, pacers, or on course runners may be trying to sleep.
  - Crew members are asked to save aid station food and drink for the runners and pacers.
  - If your runner drops from the race, make sure they have let the race director, race timing personnel, or aid station captain of their decision to drop.
  - No littering under any circumstances.
  - All animals must be leashed at all times.
  - We request that there be no smoking anywhere on the course.
- Rules for Pacers
    - 50k runners may not have a pacer. Muling is carrying and/or supplying water, extra clothing, medical supplies or any other type of aid to the runner. This provides an unfair advantage to those who choose not to use a pacer. Violation of the muling rule is grounds for disqualification.
    - All entrants must strictly adhere to the Performance Rules, Rules for Support Crews, Rules for Pacers.

The use of Ibuprofen (Advil, Motrin) or Naprosyn can lead to kidney problems when used in abundance and/or under stressful conditions such as running long distances. We will not provide these medications at our aid stations. If you feel the need to bring and use your own pain medications or anti-inflammatories, then you are willing to assume the responsibility for their use.

## Wilderness and Wildlife

Please respect the animals and wildlife while on the course. If you see trash, please pick it up. This area of NC is known for its wonderful variety of plants, flowers and birds. Hawks, woodpeckers, Cardinals and blue birds are common to this area. When you are crossing water spots, be mindful of the wildlife in the water- you may come across a salamander or crawdaddy. Snakes are also common to the area. Please be careful and if you come across one, keep your distance and navigate around the snake. Deer, raccoons, possums and squirrels are likely to be seen throughout the run. Please do not feed the animals and keep your distance. Ticks are also commonly found throughout the MST. Please check yourself during and after the race for ticks. With it being early spring, they may not be an issue but just be aware.

## Real-Time Race Results

Detailed splits will be available for each runner at the timer's tent that is located next to the Headquarters Aid Station.

## Accommodations

Camping: Rolling View Recreation Area at Falls Lake. Reservations: 1-877-7-CAMP-NC (722-6762) or go here. \$30 per night.

<https://northcarolinastateparks.reserveamerica.com/welcome.do?tti=Home>

### **The Falls Lake State Recreation**

GPS Info. (Latitude, Longitude):

36.0117, -78.6888

36°0'42"N, 78°41'20"W

Go directly to reserved facility location. You do not need to check in at the main park office.

**Main Office** - 13304 Creedmoor Road, Wake Forest, NC 27587, is located on NC 50, two miles north of NC 98.

**Shinleaf** - 13708 New Light Road in Wake Forest, one and two miles north of NC 98 and one mile east of NC 50.

**Holly Point** - 14424 New Light Road, in Wake Forest, one and two miles north of NC 98 and one mile east of NC 50.

**Rollingview** - 4201 Baptist Road in Durham. Baptist Road is on NC 98, approximately five miles east of Durham and seven miles west of NC 50.

**Beaverdam** - 14600 Creedmoor Road, Wake Forest, is located on NC 50, three miles north of NC 98.

**Sandling Beach** - 14605 Creedmoor Road, Wake Forest, is located on NC 50, three miles north of NC 98.

**B.W. Wells** - 1630 Bent Road in Wake Forest, approximately five miles east of NC 50 and three miles west of US 1/Wake Forest. From NC 98, take Stony Hill Road north and turn left on Bud Morris Road. Turn left on Bent Road and follow it to the recreation area.