



# How to Tread Lightly

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on Land and Water



# The Tread Lightly! Principles

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Supporters of Tread Lightly! practice environmentally responsible outdoor recreation by adhering to the TREAD principles. The TREAD principles are outdoor ethics messages that provide suggestions and standards to teach people how to recreate responsibly including minimizing impacts to the environment and other people.

This section will outline the Tread Lightly! principles and how they apply to the various outdoor activities including motorized recreation, water recreation, winter recreation, backcountry sport, hiking, camping, and more. This material will prepare you for enjoyable outdoor experiences and at the same time, help you share the information on how to be a responsible influence on nature and those around you.

## ***THE TREAD PRINCIPLES: fundamentals of treading lightly on land and water***

The following are the key messages for each of the principles.

### ***On Land...***

*TRAVEL RESPONSIBLY* on roads and trails or in permitted areas.

*RESPECT THE RIGHTS OF OTHERS* including private property owners and all recreational trail users, campers, and others to allow them to enjoy their recreational activities undisturbed.

*EDUCATE YOURSELF* by obtaining travel maps and regulations from public agencies, planning for your trip, taking recreation skills classes, and knowing how to use and operate your equipment safely.

*AVOID SENSITIVE AREAS* such as meadows, lakeshores, wetlands and streams, unless on designated routes. This protects wildlife habitat and sensitive soils from damage.

*DO YOUR PART* by leaving the area better than you found it, properly disposing of waste, minimizing the use of fire, avoiding the spread of invasive species, restoring degraded areas, and joining a local enthusiast organization.

### ***On Water...***

*TRAVEL RESPONSIBLY* on designated waterways and launch your watercraft in designated areas.

*RESPECT THE RIGHTS OF OTHERS* including anglers, swimmers, skiers, boaters, divers, and others to allow them to enjoy their recreational activities undisturbed.

*EDUCATE YOURSELF* by learning rules and regulations, planning for your trip, taking recreation skills classes, and knowing how to use and operate your equipment safely.

*AVOID SENSITIVE AREAS* and operating your watercraft in shallow waters or near shorelines at high speeds.

*DO YOUR PART* by leaving the area better than you found it, properly disposing of fuel, oil and waste, avoiding the spread of invasive species, restoring degraded areas, and joining a local enthusiast organization.

## TREAD LIGHTLY! ON LAND

*These are the basic tools for responsible recreation. In the following pages you will find in-depth information on how to Tread Lightly! by minimizing your impacts on land. By practicing these principles and suggestions provided in the guide, you will help preserve access to public and private lands and waterways.*

### **TRAVEL RESPONSIBLY** on roads and trails or in permitted areas.

#### The Fundamentals...

- Travel only in areas that are open to your type of recreation.
- Stay on routes and trails designated for your type of travel.
- Don't create new routes or expand existing trails.
- Cross streams only at fords where the road or trail intersects the stream.
- Understand and practice proper techniques related to negotiating terrain.
- Always travel with a partner. Traveling solo can leave you vulnerable if you have an accident or breakdown.

These are the fundamentals of reducing impacts on the land. Each recreational activity requires specialized techniques for negotiating terrain. By learning and applying these techniques, your impact on natural resources will be greatly reduced.

### **Negotiating Terrain: Off Highway Vehicles (OHV)**

#### Four Wheel Drive Use

Four-wheeling is a wonderful way to experience the outdoors and if done properly, is an environmentally sound way to enjoy the backcountry. Here are a few tips to help you negotiate terrain and enjoy your four-wheeling experience while protecting the environment.

- Put your vehicle in four-wheel drive before reaching hills, obstacles, large rocks, soft spots, ravines, ruts, and crossing streams. Generally low-range transfer gear is best for most off-highway use.

#### Hills

- Driving safely up, down, or over hills requires excellent judgment and an understanding of what your vehicle can and cannot do. If you have any doubt about you or your vehicle's ability, don't drive up or down a hill; turn around and find another route. Re-tracking is a normal part of safe four-wheeling.
- It's especially important to avoid sudden acceleration, sudden turns, or sudden braking. Any of these actions could cause the vehicle's center of gravity to shift, destabilizing the vehicle, leading to a collision or rollover.
- Travel straight up or down a hill or grade. Don't climb at an angle or cross the face of a hill below the top—you may slide sideways or roll your vehicle.
- Use a low gear in the transmission and transfer case.

#### Soft Spots (mud, soft or loose soils, sand)

- Soft spots may be tempting challenges but should be avoided.
- Driving on wet trails increases rutting and erosion.
- Avoid mud if possible while remaining on the road or trail. If you can't avoid mud, use low gears and just enough throttle to maintain forward movement.
- Engage in locking differential or hubs. If necessary, winch yourself through.
- To help generate additional traction, turn the steering wheel rapidly from side-to-side if you sense a loss of traction.
- Don't gun the engine. This will spin the tires and dig you DOWN, not forward, and could bury you to the frame. Smooth, easy power is better than too much power.

#### Obstacles

- Cross obstacles at an angle, one wheel at a time. This increases the clearance of the vehicle.
- Don't cross the obstacle straight on or you may damage the undercarriage and you also run the risk of high centering your vehicle.

#### Large Rocks

- Carefully put a tire on the rock. Proceed very slowly in low/low, with just enough throttle to maintain headway. This raises the vehicle, adding clearance to the undercarriage.
- Don't straddle the rock. This may leave you high centered on the frame or differential, possibly damaging the frame and/or driveline.
- Know where the low points on your vehicle are (the rock grabbers): the differentials, transmission, transfer case, etc.
- Know the size of obstacles your vehicle can

clear.

- Use a “spotter” in front of you to let you know what is going on underneath your vehicle.

### Crossing Ravines

- Turn into ravines, large depressions or “whoop-t-dos” at about a 45-degree angle, left or right (turning into, not away from, the depression) and let the vehicle enter and leave one tire at a time.
- Go slowly, allowing the vehicle to stabilize itself.
- Don’t enter straight into a depression. You may wedge yourself in front first or hang up the front and rear as you attempt to exit.
- Know your approach and departure angles.

### Dealing with Ruts, Gullies, and Trail Washouts

- Straddle ruts, even if they are wider than your vehicle. This may mean running your tires on their sidewalls along the inside of the rut. This will keep your vehicle level.
- It is important to keep your vehicle level while maintaining control. Be patient and drive slowly in order to keep your vehicle balanced, front to back and side to side.
- Don’t try to go forward with your vehicle tilted to one side, because if the rut suddenly gets deeper, your vehicle may roll or slide on its side.
- If you feel the vehicle tilt, turn into the direction of the tilt. Gently apply more power and as it levels out return your steering back to the direction you want to go.
- Don’t spin your wheels: you may dig in, get hung up, slide or roll your vehicle.

### Crossing Streams

- Cross slowly, at a 90-degree angle to the stream, or at a slight angle to minimize streambed damage. Crossing slowly also helps keep water out of the engine’s air intake. Create a steady “bow wake” that will form an “air pocket” in and around the engine bay and away from tires if water is bumper height.
- Don’t charge across the stream, creating spray and rooster tails.
- Don’t drive up and down the streambed; it disturbs fish and other aquatic habitat.
- Cross streams only at trail fording points. Check the water depth. If it is higher than your engine’s air intake, don’t cross. Water in the engine will stall it and can introduce pollutants to the water resource.
- Check your brakes after water crossings.

*Hint: Here’s a quick depth guideline for stream fording—hub depth or less: you should generally have*

*no problems; hub to bumper: check air intake height and proceed slowly; bumper to bottom of headlights: use extreme caution, sudden dips in the streambed could mean water in the air intake, at headlights or above: do not attempt, vehicle height is at or above the air intake. Regardless, the best advice is to follow the guidelines in your owner’s manual since all vehicles are different.*

### Turning Around

- Don’t try to turn around on a narrow road or trail, unstable ground, or steep hillside. You may slide off the road or trail or roll the vehicle. Back up until there is adequate space to turn around.
- Back straight down a hill or steep incline, using reverse and transfer case “low” range.
- Stay in gear, keeping your foot off the clutch and throttle. Apply the brake gently (“feathering the brake”) to keep from locking up the wheels, which may cause skidding.
- Keep your foot off the throttle. This allows engine compression to assist in braking.

### Guiding

- Use a guide for safety whenever possible. They can see things you can’t, especially when backing up. Only assign one person to guide. Guide from the uphill side of a vehicle or stay well downhill.

*Hint: When guiding, locate the lowest point on the vehicle and give instructions to avoid collisions. Give clear and concise directions verbally and by using hand signals.*

### If You Stall

- Automatic Transmission: Apply the foot and emergency brakes, and then put the transmission in PARK. Start the engine. Keep your foot firmly on the brake, and put the transmission in low or reverse. Release the emergency brake, and then slowly release the foot brake until the vehicle begins to move. Gently apply throttle.
- Manual Transmission: Don’t depress the clutch. Keep vehicle in gear and engage the starter. The combination of low range and first gear or reverse will allow the engine to fire and move at the same time. If you stall again, repeat. This procedure allows you to maintain full control. You won’t damage the starter and this process preserves your clutch.
- If you have a late-model vehicle with an ignition lockout, do the following: Set the emergency brake. With your left foot, depress the clutch and with your right foot, depress the brake. Shift into first or reverse (the transfer case in low), and start the engine. Keep your foot on the brake, and gradually release the clutch until you feel it engage. Release the emergency brake and the foot brake until the vehicle begins to move. Gently apply throttle to maintain forward momentum.

## Keep Your Distance

- Keep a safe distance between vehicles. Enter tough spots one vehicle at a time. A vehicle on the other side of the problem area may be able to help you by serving as a winch point or assist you in towing.
- Wait for the vehicle in front of you to make it successfully to the top of a hill before proceeding. The vehicle may be unable to make it and will need to back down.
- Keep the vehicle behind you in view to make sure it doesn't encounter any problems.
- Don't tailgate. The vehicle in front of you may stop suddenly, back up, or even begin to slide backwards.
- Reconnoiter ahead on foot. When in doubt, get out!
- Know what's ahead of you. Even if you know the trail, stop frequently. Get out, walk ahead, and observe.
- Know what difficulties lie ahead before you encounter them. Evaluate the alternatives and find the easiest, least dangerous, and least damaging choice.

## Winching

- A properly selected and mounted winch can be an invaluable tool and can help reduce the potential for environmental damage on any four-wheeling adventure. The winch can be used to remove fallen trees and rocks on the road or trail, help pull vehicles out, or right an overturned vehicle.
- Direct Pull: After properly attaching the cable to the object or vehicle, engage the winch. Put the vehicle in low range/first gear and slowly apply power. Follow the directions of the spotter.
- Winching a Stuck Vehicle: Attach the winch hook to the tow hook or the frame (NEVER to the bumper). Engage the winch to the frame mounted attachment point. Never wrap the cable to itself because it may damage the cable. Never attempt to drive the vehicle while winching; only assist the winch by driving if the vehicle is on a bind or the tires hung rocks or an embankment. Always drape a blanket over the middle of the winch cable to keep it from flying back at you if it comes loose or breaks.
- Pulling Stuck Vehicles or Removing Obstacles: If you use a large tree as an anchor, use a tree strap to protect the tree and place the strap as low as possible on the tree. If you are attaching your winch cable to a rock, use a chain to wrap around the rock as the rock may chaff or cut the nylon strap. Attach towing cable or chain as low as possible. If a large tree or rock is not available, use an in-ground anchor or bury your spare tire as an anchor. If necessary, use a

pulley block to multiply the pulling power. Let the winch pull you out; never drive the winch.

- Righting an Overturned Vehicle: Attach the tow strap (or if not available, the winch cable) to an overturned vehicle's far side frame member (farthest from winching vehicle). Wrap strap/cable starting toward the winch vehicle, down the side, under the overturned vehicle, up the far side and across the overturned vehicle's underside. Protect the strap or cable from sharp objects on the overturned vehicle's body and undercarriage. This multiplies the winching power and gives greater control. Attach to the winching cable. Engage the winch and let the winch do the work. Be sure to have a spotter located in a safe position away from the overturned vehicle to direct the winching vehicle's driver. To keep the vehicle from slamming down when rolling back on to tires, use another vehicle for resistance using a strap or winch to let it down smoothly.

## Choosing the Right Winch

- As a general rule, choose a winch that is 1 \_ times Gross Vehicle Weight Rating (GVWR) not empty.
- For small vehicles, a 6,000 lb-rated winch is generally adequate.
- For larger vehicles, an 8,000 or 9,000 lb-rated winch is recommended.
- For heavy duty four-wheeling with heavily loaded vehicles or full-size pickups, a 10,000 - 12,000 lb-rated winch is recommended.
- Obtain or assemble a winch accessory kit with heavy-duty leather gloves, wide tree strap, clevis, and pulley. These are available from most winch manufacturers. (A pulley block effectively doubles the winch capacity).

## Driving Tips

- Be a "feather foot." Go easy on the throttle and brakes to maintain control.
- Keep your thumbs on top of the steering wheel, hands positioned at 10 and 2 o'clock. If you hit an obstacle, the tire may be deflected and jerk the steering wheel suddenly. If the thumbs are hooked over the steering wheel spokes, you may suffer a severely sprained or broken thumb. This happens more often with manual steering, but it can also happen with power steering.
- Lower the tire pressure to where you see a bulge in your tire, generally not lower than 20 pounds. This will give you better traction and provide a smoother ride by increasing the footprint of the tire. However, increasing the sidewall bulge makes it vulnerable to snags, rocks, or sharp roots. Do not exceed 10-15 miles per hour with the lowered air pressure. Back up before you resume driving at higher speeds.

(Keep tire pressure high on ice or thin mud.)  
Tire pressure that's too low may also break the seal of the tire to the wheel rim.

- Know where the differential is: this is the lowest point on your vehicle. It could be on the right, left, or in the middle. Knowing this will help you know where to place your tires to avoid hitting the differential.
- Use the left foot braking technique. Modulating the brake and throttle with both feet helps maintain control, even on a vehicle with a manual transmission. Light pressure on the brakes helps reduce tire slippage before wheel spin occurs. At the same time, an even throttle feed keeps a uniform application of power to the wheels. Going back and forth from the throttle to the brake interrupts the flow of power and can upset the vehicle's balance, causing loss of momentum.
- Beware of the passenger side; know the parameters of tire placement.
- Look ahead of your vehicle about 30 yards to pick your trail and align your vehicle for the best route.
- Don't ride the brakes or the clutch. Riding the brakes can overheat the brake fluid, leading to fade or failure when you need to brake. Tap the brakes to maintain steering control and avoid lock-up, skidding, or sliding. Riding the clutch may cause the throw out bearing and spring to wear and the friction surface to overheat. Keeping the power going to the wheels helps maintain control. Disengage the clutch only at the last instant when coming to a full stop.

*Hint: Borrow a page from the racing world. With your front wheel pointed straight ahead, install a piece of white tape around the steering wheel at the 12 o'clock position. This will tell you when your wheels are pointed straight, and how much steering input you are giving the front wheels—eliminating the guesswork.*

## All Terrain Vehicle (ATV) and Dirt Bike Use

ATV and dirt bike riding are two of the fastest growing recreation activities in the country. With large numbers of riders on the trails, these activities can lead to damaged lands if not done responsibly. Successful ATV and dirt bike riding is all about skill. It is the skilled rider who can ride slowly over challenging terrain with minimal impact to the ground. Using skill and common sense will help you get to your destination smoothly, safely, and in style.

### Slick Trails

- Please restrict recreation during periods of wet or muddy soil conditions to reduce damage to the trail surface.
- Minimize use of throttle. Many riders think that using more throttle will get them through

slick or wet trails better. Usually, just the opposite is true because high wheel spin merely turns your drive tires into "slicks." It is much better to finesse the throttle for maximum traction.

- If your ATV has a manual clutch, you can also use it to feel for traction. The goal is to maintain forward motion while minimizing wheel spin.

### Stream Crossings

- Cross only at established fording points, and check water depth carefully.
- Take it slow and steady. Try to identify big rocks or other obstacles before you begin crossing. If you spill or drop into an unexpected deep hole, shut off the engine quickly to prevent water from being drawn past the air cleaner.
- Avoid blasting through streams. It is detrimental to fish and other aquatic life, not to mention your engine. Stirring up the sediment in the stream bottom makes it harder for fish to breathe and find food.
- Avoid crossing streams at high speed; it can cause water to rush into your air box, drowning the engine.

### Logs

- Ideally, it is best to move a fallen log off of the trail, but if you can't, go over it. Riding around it makes another trail, which is undesirable.
- If you come across an obstacle you can't move, let the land manager know the location so he or she can take appropriate action.

### ATVs

- First, decide if your skill level and machine capability are up to the maneuver you desire. If unsure, turn off the engine, get off the ATV, have a fellow rider help you lift your ATV's front end, and proceed to rear end over the log.
- If you choose to ride over it, approach the log slowly, stand up with your weight concentrated on the footrests, not the handlebars.
- Just before the front wheel(s) touch the log, apply a small amount of throttle to lighten the front end with just enough momentum to get the rear tires over the log. Again, speed and wheel spin won't help; timing and technique are everything.

### Dirt Bikes

- If you must go over a log, use the throttle and shift your weight to the back of the bike just enough to lift the front wheel over the log. You will want to carry just enough momentum to get the rear tire over. If you don't, you could dig a rut in front of the log, and spend a lot of time and energy lifting your bike across.

- Again, too much throttle and wheel spin will dig up the trail and could make the maneuver dangerous.

### Switchbacks

- Switchbacks are sharp, zigzag turns in trails going up steep terrain. They exist for a reason: to keep grades low and to prevent the trail from eroding during storms.
- Skilled riders work their way through these challenging features, relying on weight shifts and smoothness to negotiate the turns while reducing wheel spin.
- When riding switchbacks, avoid roosting around the apex of the turn when climbing, or brake-sliding while heading down. Both techniques gouge the trail, requiring increased trail maintenance.

### ATVs

- If the turn is really tight, stop with the front wheel touching the inside (apex) of the turn, place the transmission in neutral, set the parking brake and dismount the ATV on the uphill side.
- Pull the rear end to the outside of the turn, remount, and resume riding. Using this simple but safe technique can help you maneuver your ATV around the tightest switchback.

### Dirt Bikes

- If the turn is tight (going up), skilled riders can “loft” the front wheel slightly while pivoting on the rear tire. It is a tricky move. Don’t try it in a dangerous spot.
- When riding down extremely tight turns, you may find it easier (and safer) to get off the bike (to the inside of the turn) and walk it around. First, shut the engine off, put it in first gear, pull the clutch gently to allow the bike to roll forward, and release the clutch to use it like a hand brake for the rear wheel.

### Ruts

- Stay loose over the machine to allow for any sudden directional changes the ruts may cause.
- Look ahead, and exercise smooth throttle control.
- Avoid digging the grooves deeper and be wary of slippery tree roots or rocks spanning the ruts.

### Meadows & Marshy Areas

- These sensitive habitats deserve special protection; never go through them. Riding through undergrowth or across meadows can destroy nesting sites and other sensitive habitats. Ride only on designated trails and roads.
- Look for trails around the edge of such areas, where the soil is more firm and dry. Ruts made

in meadows leave a terrible impression on the environment and everyone who sees them.

- When you cross a meadow on a trail, stay on the existing track. If the trail is too muddy, turn around or find an alternate legal trail to your destination. Don’t make new trails across meadows or marshes.

### Rocks

- Ride loose rocks with your rear end slightly off the seat, looking ahead, keeping easy on the throttle, and remaining in one gear higher than you would normally.
- For big stationary rocks, rise farther off the seat, keep knees bent, keep feet high on the footrests, and pick your line very carefully.
- Beware of large rocks on a tight trail that can damage the shift or brake levers, or worse yet, punch a hole in the engine case.
- A finger on the clutch lever can soften the blow when you hit a well-anchored rock at the wrong angle.
- If your ATV has a clutch, a slight pull on the clutch lever softens the power delivery to the ground, making a smoother ride.

### Sand

- Ride sand relaxed, yet maintain a tight grip on the bars. Look down the trail far enough to react to upcoming obstacles, sit or stand with your weight toward the rear of the bike, gently squeeze the tank with your knees, and avoid chopping the throttle abruptly to keep the front end from “diving.”
- Easing off the throttle in loose, soft sand can act as a natural brake for slowing down.
- Because of sand’s power and momentum-robbing characteristics, you may find it helpful to accelerate a little sooner and brake a little later than you normally would. This will help keep you on top of the sand and keep your movements more fluid. Only practice this technique in areas with no obstacles or hazards. Watch out for other riders.
- Don’t ride at higher speeds where there is limited visibility and watch for loose sand that can cause the front wheel to “dive” or lose control.

### Winching with your ATV

- Whether you are clearing the trail of fallen trees or recovering another vehicle, a winch can be an invaluable tool and can help reduce the potential for environmental damage on any ATV adventure.
- Know how to use your winch before you need it. Practice attaching it and removing it before you head to the trail.

- Take time to assess the situation and plan your pull carefully. Analyze the situation and make any decisions necessary for the proper use of your winch.
- Use leather gloves to protect your hands. Never let the wire rope slide through your hands.
- A good, secure anchor is critical for winching. While winching, make sure the anchor is strong enough to hold. Trees, stumps, rocks, and other natural anchors can be used. Use a trunk protector, blanket, or wide strap when anchoring to living trees to help protect the tree.
- Never winch with less than five wraps of wire rope around the drum.
- Use the right equipment for your situation. Know how much your winch can handle and never exceed that limit.
- Inspect all your winching equipment before and after each winching operation. If the wire rope has become frayed or kinked, it needs to be replaced.
- More specific information on using your winch can be found in an Owner's Manual.

### Machine Tuning

- Riding an improperly prepared vehicle is not only tiring, but can also cause damage to the terrain while you're trying to compensate for poor performance.
- If your vehicle is not set up properly, it can make otherwise simple obstacles more difficult to overcome.
- To compensate for a poor tuning, you may have to rev the engine at a much higher RPM just to keep it running. This can make riding dangerous and can increase wheel spin and your impact on the trail. Gearing can have the same effect; if first and second gears are too high for tight trails, you won't have much fun.

### OHVs in Sand Dunes

Sand duning is a wonderful way to experience the outdoors, and if done properly, is an environmentally sound way to enjoy the area. Here are a few tips to help you negotiate the terrain while protecting the environment.

- Determine the boundary of the designated sand duning area. Don't travel outside this area.
- Avoid running over plants. Not only does it damage the environment, but it can also ruin your tires.
- Never take your eyes off the dunes, and watch your speed. Obstacles appear quickly.
- Be aware that the dunes are constantly

changing: terrain features on the ride out may not be the same on the way back.

- On windy days with shifting sand, use stationary landmarks and/or global positioning system (GPS) units to help identify the way back.
- In coastal duning areas, watch for quicksand in the low unvegetated areas between dunes.
- Avoid areas adjacent to rivers, streams, and lakes. These areas in sand dunes are especially sensitive.
- In areas adjacent to sand dunes, travel on designated roads and trails. Ride in the middle of the trail to minimize widening it.

### Terrain Features

- If you overdrive your line of sight by traveling too fast you may inadvertently wedge yourself in a "witch's eye" or "blow hole" (a ravine or depression in the sand).
- Watch for slip faces. Often found on the leeward (downwind) side of a dune, slip faces build up with unstable loose sand, which slips and runs down slope creating steep drop offs.
- As you approach the top of a dune crest (razorback), drive parallel to the edge to avoid shooting over a steep drop-off. Try to do this on the driver's side so you have a better view over the razorback.
- Heat haze and midday whiteouts can distort terrain. Reduce speed to allow more time to react.
- Scout an area before traveling at higher speeds. When traveling at higher speeds in unfamiliar dunes it is easy to miss terrain features that may cause accidents or lead to serious injury.
- When traversing, maintain speed and possibly accelerate to maintain momentum to stay on hills. Turn your wheels upslope and use throttle to hold your height on the hill. Traversing can help in spotting exit routes and getting around obstacles.
- When jumping hills or dunes, use a spotter.

### Driving Tips

- When driving a sand rail, know how to operate a clutch, shift smoothly, and select gears that maintain the middle RPM range.
- Decelerate into corners and accelerate through corners to smoothly track the desired course.
- Braking should be smooth to minimize "locking up."
- Use momentum to climb hills; downshift early to avoid stalling.
- If you stall mid-slope, shift into reverse and use the clutch and throttle to start a straight backing movement. Before the vehicle gains too much momentum, turn to the most

favorable side, turn to face downhill, then shift into first gear.

- Berms created near campsites by repetitive riding (also known as “worm tracks” or “speed bumps”) are difficult to spot and extremely hazardous. Keep speeds low in these areas.

## Negotiating Terrain: Nonmotorized Travel

### Mountain Biking

Mountain biking is a fantastic way to experience the outdoors, and if done properly, is an environmentally appropriate way to enjoy the backcountry.

#### Terrain Features

- Avoid trails when they are obviously wet and muddy. Riding wet and muddy trails causes ruts to appear. Ruts can lead to more damage as users try to avoid them by moving to the side, which widens the trail or causes multiple trail ruts. If you are riding on an otherwise dry trail and come across a wet section, carefully go directly through the center of the mud or puddle, or consider turning around and going back the way you came.
- Cross streams only at designated fording points.
- Cross streams less than 1 foot deep to avoid damaging your bike. Approach streams in low gear at a 90-degree angle in standing position. Keep your momentum. Remember stream bottoms are often slippery. Walking across moving water minimizes the risk of dumping your bike and possibly injuring yourself.
- In sand it is best to keep your weight on the back of your bike and let your front wheel float, trying not to let it wander off course. Steer gradually and keep your momentum. Very soft or loose sand may require you to walk your bike to a more stable surface.
- Gravel requires good balance and attention. Avoid sudden movements, steer gradually, and keep your weight on the back of the bike.
- Select a good line through rocks. Keep your momentum and ride in a slightly higher gear. Pull up on the handlebars for large rocks you traverse. Remember to consider your rear wheel when choosing your line.
- Hopping logs can be great fun. Treat logs similarly to rocks and approach them at a 90-degree angle.
- Leaves and pine duff can hide potential hazards. Use caution and expect the unexpected when riding through fallen leaves.

### Climbing

- When climbing, shift to a gear that provides comfortable forward momentum and maintains traction. Ride the tip of the saddle with your nose over the axle.
- If you lose traction, lean back slightly, and pull up on the bars.
- Avoid going around water bars or other erosion control devices to prevent forming a runoff channel. These devices are placed across trails to direct water off the trail and prevent erosion.

### Downhill

- Ride back in the saddle keeping your weight over the back wheel.
- When descending, apply enough brake to maintain control. Use the front brake sparingly relying mainly on the rear brake. Quick, light pumping of the rear brake reduces the chances of locking your wheels and skidding.
- Ride switchbacks and corners as slow as possible. Maintain your balance; stand out of the saddle.
- Keep control of your bike at all times and choose the safest line.
- Keep your pedals parallel to the ground while maintaining good pedal contact.

### Other Riding Tips

- Dismount and walk the bike if you are uncomfortable with the terrain or grade.
- Never make shortcuts on switchbacks. These are sharp, zigzag turns on trails in steep terrain. Shortcuts will lead to unnecessary erosion.
- Always be in control of your bicycle. If you find that your bike is running off the trail often, ride slower or choose a wider, less technical trail in the future.
- Stay on designated trails, paths, routes, and roadways when riding off-pavement.
- Make your presence well known when approaching others or blind corners.

### Foot Travel

Anyone who spends time in the great outdoors will travel by foot at some point. Even foot traffic can impact the land; therefore we should all learn to tread lightly.

- Stay on the trail even if it is rough and muddy. Walking on the track edge and cutting switchbacks increase damage and cause erosion and visual scarring.
- Travel in small groups and walk single file to avoid widening the trail.

- When allowed off designated trails, spread out in open country. This disperses impacts and avoids the creation of new trails. Select off-trail routes that avoid fragile areas, particularly wetlands, meadows, unstable slopes, cryptobiotic soils, tundra, and places covered by shrubs, dense-leafed herbs, or ferns. These areas will show the effects of footprints much longer than forested, rocky, or sandy areas. Following in each other's footsteps concentrates impact.
- Avoid using game trails in open country.
- Watch where you put your feet to avoid sensitive vegetation.
- Be serious about animal-proof food storage, and clean up leftover scraps. Pack out whatever you pack in, as well as all litter you may find as you recreate.
- Take rest stops only in areas where your presence will not damage vegetation.
- Flagging and marking trails is unsightly. If it is necessary, remove flagging as you leave. Using orienteering skills for route finding is more challenging and leaves less of an impression on the landscape.

#### Traveling with Horses and Stock Animals

- Pack efficiently with your stock animals to minimize the number of animals you will need to bring.
- Ride single file to reduce trail damage, stay on the trail, and don't cut switchbacks.
- Plan your trip to minimize travel in low, boggy areas and marshes, which are easily impacted.

#### Backcountry Sports

Many people spend time outdoors participating in hunting and fishing sports. Practicing minimum impact skills should complement the challenge and excitement these sports provide.

#### Hunting

- Keep scouting to a minimum. When you spend time in the backcountry scouting, you not only impact the areas you travel in but when your presence is detected by game they often retreat to isolated areas for safety.
- Always practice minimum impact travel techniques for your mode of transportation.
- When retrieving game, don't travel cross-country with your OHV. Get as close as possible on a trail or road and then travel by foot to the site of your kill.
- Never ride an ATV with a loaded firearm. When traveling on the trail, keep your firearm secure in a protective case separate from the ammunition.
- Stay on the trail even if it is rough and

muddy. Walking on the track edge and cutting switchbacks increase damage and cause erosion and visual scarring.

- Walk single file to avoid widening the trail.
- When traveling in open country on foot where there are no trails, spread out to disperse impacts and avoid creating new trails.

#### Geocaching

- If traveling by vehicle, stay on designated roads and trails.
- Follow best practices for negotiating terrain with your vehicle.
- Don't create new routes or expand existing trails.
- Cross streams only at fords where the road or trail crosses the stream.
- If hiking, walk single file to avoid widening the trail.
- Spread out in open country where there are no trails. Spreading out, rather than following each other's footsteps, disperses impact and avoids creating a new trail. If possible travel on hardened surfaces such as gravel, slick rock or in sand washes.
- Use the "track back" feature on your Global Positioning System (GPS) unit rather than flagging and marking trails.
- Comply with all signs and barriers.

#### Negotiating Terrain: Winter Travel

- Travel only in areas designated for your type of winter travel.
- Use good judgment when traveling on frozen waterways. Check ice conditions before hand.
- If you are out in the shoulder seasons (spring and fall) when conditions are sometimes muddy, stay on snow or walk in the middle of the trail to avoid creating new trails.
- Comply with signs and barriers.

#### Snowmobile

##### Terrain Features

- Obey all trail signs, including speed limit signs, stop signs, and hazard warnings. Warning signs can refer to bridges, sharp curves, steep hills, large bumps, or road and trail crossings.
- Stay on deep snow cover whenever possible.
- Observe speed limits; whether they are posted on every trail or not, it is your responsibility to obey local speed limits.
- Operate your snowmobile only when there is sufficient snow cover.

- When climbing a hill, approach the summit with caution in case there is another snowmobile, a steep downhill, a sharp turn, or some other potential hazard beyond your line of sight.
- Do not ride off cornices (snowy overhangs), as they are unstable and dangerous.
- Avoid riding on frozen waterways as much as possible. If you must ride on lakes, streams, or rivers, approach them with caution and check ice conditions before hand. Ride at reduced speeds to optimize your view of potential hazards.
- Always cross roadways at a 90-degree angle to the road to hasten the crossing.
- Reduce your speed on the trail when approaching a corner. Squeeze the brake lightly, at least once, to evaluate how slippery the snow is and to slow your snowmobile in advance of the turn. Keep to the right side of the trail on every corner. Do not slide the snowmobile through the corner, or accelerate hard out of the corner; you will damage the trail.
- Be aware of trees, stumps, and branches near the trails. Avoid them by maintaining control at reasonable speeds.
- Be prepared with contact information on the local search and rescue organization in case of an emergency.
- Pack rescue gear. Wear an avalanche beacon and know how to use it. A small pack with a shovel and a probe should be worn on the body at all times. Pack a cellular phone, emergency phone numbers, and a GPS device if possible.
- If you travel in avalanche terrain, ALWAYS travel with a partner. Have a rescue plan before you begin. What will you do if you trigger an avalanche? How will you respond if you are the rescuer?
- Use terrain to your advantage. Follow ridges, thick trees, and slopes with safer consequences. Avoid terrain traps such as gullies, creek beds, and depressions. Don't wait at the bottom of steep slopes. Watch other riders and skiers from a "safe spot" or area outside of an avalanche path.
- Any slope steeper than 25 degrees can avalanche. Slopes 30 to 45 degrees are more prone to slide. Avoid these steeper slopes.
- Periodically check for clues to an unstable snow pack. These include recent avalanches, new snow, wind loading, rain, whumping noises or hollow sounding snow, shooting cracks, and/or signs of rapid or intense warming (roller balls and point releases).

### Riding Tips

- Keep your feet in the foot wells when riding.
- Do not lock your brake when going downhill. Rather, pump the brake repeatedly, releasing it just as the track locks up and is about to slide, then apply it again to further slow the snowmobile.
- Lean into turns slightly with your upper body to enhance the snowmobile's maneuverability and to avoid tipping the machine up onto one ski.
- Touring snowmobiles have extended seats designed to accommodate up to two riders. Do not ride two-up on a snowmobile designed for only one rider because this could result in a hazardous loss of control and maneuverability. Make sure the passenger riding on the back of a two-up seat leans slightly into turns with the driver. Take advantage of having two sets of eyes on board, and make sure the passenger is watching for hazards and other snowmobiles.
- Smooth steep wind loaded slopes can be very dangerous. Check stability before attempting to ride these slopes.
- If you enjoy riding or skiing steep slopes remember, ONE PERSON AT A TIME! NEVER ride or ski above your partner.
- If a snowmobile gets stuck, don't ride up to help. The extra weight on the slope may trigger an avalanche.
- Old tracks do not mean a steep slope is safe. Always check for instability.
- Understand cornice safety. Cornices are overhanging deposits of wind-drifted snow that form along the leeward side of a ridge. Cornice breaks can be caused by the additional weight of you or your machine. Make sure the snow your on has solid ground underneath. Do not ride or ski on slopes overhung by a cornice.

### Avalanche Awareness

The best way to avoid avalanches is to be informed, travel with the appropriate gear, and avoid high-risk areas. Check [www.avalanche.org](http://www.avalanche.org) for more information on avalanche safety and if you have the opportunity, take an avalanche safety course. The tips below serve as general safety information for traveling in avalanche terrain.

- Before you go, contact the local avalanche center for the latest avalanche forecast.

## **RESPECT THE RIGHTS OF OTHERS** *including private property owners and all recreational trail users, campers and others to allow them to enjoy their recreational activities undisturbed.*

### **The Fundamentals...**

- Respect and be considerate of other users so that all may enjoy a quality outdoor experience. Keep a cheerful, pleasant attitude. A gracious “Hello” goes a long way to building a friendly relationship with other trail users.
- Yield the right of way to those passing you or traveling uphill and always yield to horses. When driving also yield to hikers, and bikers. Leave gates as you find them unless otherwise posted.
- If crossing private property, be sure to ask permission from the landowner(s).
- Keep the noise and dust down.
- Don’t be a trail hog. Share with all those who recreate, regardless of their means of travel.

Respect and common courtesy go a long way. By valuing the environment and those who enjoy it, you keep recreational opportunities available for you and others to enjoy. Remember these basic rules and you will find your outdoor experience to be more rewarding.

### **Off-Highway Vehicles**

- Yield right of way to drivers on the uphill grade or those who may overtake you.
- Nonmotorized travelers maintain the right of way. Yield to bicycles, horses, and hikers.
- When encountering pack animals use extra caution. Slow down, move to side of the trail, stop and ask the handlers how to proceed. If you are wearing a helmet, remove it to look human to the animals and don’t make sudden movements.
- Do not idly ride around in camping, picnicking, trailhead, and residential areas.
- Keep speeds low around crowds and in camping areas.

### **Mountain Bikes**

- Faster bikers should take care not to throw sand and mud from their wheels while riding past other trail users.
- When encountering other hikers, bikers, or stock users on the trail, yield to the passing

group or those traveling uphill. Dismount and stand to the side if the trail is narrow. If you are passing others, politely announce your presence and proceed with caution.

- When encountering pack animals on the trail, stop and ask the handler how to proceed. Do not make sudden movements or noises, both of which might startle the animals.
- Slow down when approaching blind corners or hillsides.

### **Backcountry Sports**

#### **Hunting**

- Be considerate and respectful of other hunters and non-hunters in the area.
- Be a sportsman and practice ethical hunting.
- Never take a shot unless you see the animal clearly, you can identify it, and you know what lies between you and the target. Also be aware of what lies beyond the target.
- Don’t shoot across roads, trails, or waterways.
- Do not leave animal remains in wetland or riparian areas, campgrounds, or on roads or trails where they are unsightly and may attract predators.

#### **Geocaching**

- Check if permission is required before placing a cache on private land, and respect landowner(s) wishes.

#### **Camping**

- Choose camping supplies in neutral colors that blend with the natural surroundings and are less intrusive to other campers’ experiences.
- Be respectful of those camping in the same general area. Keep noise to a minimum, especially in the early morning and evening hours.
- Be considerate of other campers’ privacy; keep your distance and avoid traveling through their campsites.

#### **Snowmobile**

- Before starting a day’s ride, agree as a group on hand signals to use on the trails. You should include signals for “stop ahead,” “oncoming riders approaching,” “slow—hazard or sharp curve ahead,” and “road crossing clear, proceed with caution.” Common signals among experienced trail riders include holding up fingers to represent how many snowmobiles are behind you in your group or holding up a fist if you are the last one.
- Ride single file. Trails are typically groomed wide enough for only two snowmobiles. You

must leave room to your left for oncoming snowmobiles to pass.

- Excessive sound is bothersome to some people and to wildlife. Retain and maintain your snowmobile's stock exhaust system. Snowmobile exhaust is the single most important issue causing user conflict.
- Be a courteous rider. Yield the right of way when it helps the traffic flow to be safer and smoother.
- Keep to the right on the trails—even when you do not see any oncoming traffic. It is essential to stay to the right while riding around corners to avoid collisions with passing snowmobiles. Reduce speeds as required to stay to the right while cornering.
- Pass on the left, but only pass another rider if that rider is aware of your presence and has waved you on. Make sure you have complete visibility of the trail ahead so you know it is safe to pull out to the left to pass. Slower groups of riders should slow down and hug the right edge of the trail to let faster riders pass.
- When stopping along a trail, pull your snowmobile as far to the right side of the trail as possible in a very visible stretch of the trail. Do not stop near corners, and consider how many riders are in your group so the last riders aren't parked near a corner. Park single file and watch for oncoming snowmobiles.
- Show consideration for others, including snowmobilers, ATV riders, land owners, skiers, hikers, motorists, and wildlife.
- Ride only where permitted. Obey "no trespassing" signs, even if you see tracks in the posted areas. Being a responsible snowmobiler can help all riders retain access to choice riding areas.
- Unless a marked trail clearly routes you around a locked gate, obey all gate closures as you would in a vehicle. If you have permission to go through a gate, leave it as you found it, either open or closed.
- Respect fence boundaries and landowner(s)' rights, even when the fences are snow-covered. Always obtain permission to cross private land, and stay on the trail.
- Park in designated areas at trailheads. Do not park in restricted areas or in a way that blocks traffic or other vehicles. If necessary, unload the sleds from the trailer, and then park the tow vehicle.
- Trails are for riding – not racing! Leave the competition at the racetracks. If you absolutely must go fast, enter a sanctioned snowmobile drag race or radar run.

## Other Winter Travel

- Keep to the right when meeting other winter recreationists and yield the right of way to downhill traffic.
- Respect established ski tracks. If traveling by foot or snowshoe don't damage existing ski tracks.
- When stopping, step to the right side of the trail to let other skiers and recreationists pass.
- Move to the right to allow faster skiers to pass.

***EDUCATE YOURSELF by obtaining travel maps and regulations from public agencies, planning for your trip, taking recreation skills classes, and knowing how to use and operate your equipment safely.***

## The Fundamentals...

- Know local laws and regulations.
- Know which areas and routes are open to your type of recreation.
- Make your trip safe. Have the right information, maps, and equipment and know how to use them.
- If traveling by vehicle, make sure the vehicle is properly maintained and compatible with road or trail conditions.

With a little preparation and education, you can make your next backcountry experience fun and safe while protecting the environment. Plan for the expected as well as the unexpected. If the opportunity presents itself, take a course or workshop related to your favorite outdoor activity.. Universities, community education programs, and outdoor retailers and outfitters often offer classes related to recreational activities. Education and preparation will make your trip easier and more enjoyable.

## Preparation

### For Any Outing

- Obtain a travel map of the area you wish to explore. After selecting a destination, determine which areas are open for your type of use. Select the safest route for your ability, and determine what special rules and regulations may be in effect.
- Contact the land manager to see if there are certain times or specific areas to avoid: times when wildlife are particularly sensitive to disturbance (e.g. nesting or birthing seasons) or when soils are wet and prone to rutting; areas that are particularly sensitive to disturbance

because of rare or endangered plants and animals, critical wildlife habitat, or fragile soil or vegetation types; and problem areas that are extremely crowded or where environmental impacts are severe.

- Check the long-term weather forecast for the location you will be visiting. Dress and pack gear accordingly. A storm that you aren't prepared for can be a miserable experience at best and an outright disaster at worst.
- Make a realistic plan and stick to it. Let someone know where you will be and when you will return, even on a day trip. Have an itinerary of your overall trip and leave a copy with family or friends in the event of an emergency.
- Carry local trail maps and area highway maps to get the best idea of your location and proximity to towns, roads, and trails. Better yet, invest in a global positioning system transceiver (GPS) to accompany your maps.
- Be familiar with the different signs that you will see on the trail and proceed accordingly.
- If you are towing a trailer of any sort make sure it is properly maintained and the tail lights work.

## Safety

### For Any Outing

- Be certain each member/vehicle in your party has a map and knows where the group is headed. Select predetermined rest stops and designate meeting places in case of separation. If you do become separated, stay on the correct trail and let the group find you. Taking different trails could facilitate you becoming lost.
- Don't overextend daylight hours. Plan your schedule to allow being back at the base, campsite, or designated meeting place at a predetermined hour.
- Always travel with a basic first aid kit and survival supplies.
- Be prepared in case of an emergency that requires you to spend the night in the backcountry.
- A cellular phone is a smart, potentially lifesaving link to help in case of an emergency. Before your day's trip, write down local emergency telephone numbers and bring them with you. Keep in mind, however, that you may not have service in the area. In some locations only satellite phones provide service.
- Travel with a partner. Not only is there fun in numbers, but traveling with at least one companion is also essential to your safety. Remember that you're traveling in the

backcountry, sometimes into remote areas at great distance from roads and towns. The buddy system is vital to avoiding tragedy in case of emergencies such as a mechanical breakdown or an accident.

- Do not reach the point of mental or physical exhaustion. Have fun, and end the day's trip before you are too tired to travel safely.

## Off-Highway Vehicles

### Preparation

- Contact the land management agency responsible for managing the area. They have specific information on road and trail conditions, temporary or seasonal closures, special permits, or low-impact driving practices that apply to off-highway vehicle use.
- If the area you wish to reach is on private property, contact the land owner(s) to obtain permission to access their land. Ask about restrictions.
- Check to see if the state requires special licensing or safety certification for the driver(s). Is any special equipment required?
- If needed, get your vehicle serviced or repaired before the trip.

### Four-Wheeling

- Do a 'dry run' before you go to be sure everything fits and that you haven't forgotten anything. Note what you have missed and what you may need as you are en route (food, fuel, water, emergency tools, or supplies).
- Balance your load. Place heavy items that won't be needed in an emergency from the rear axle forward for better traction.

### ATV and Dirt Bike Riding

- ATV and dirt bike riders are exposed to the elements. A great ride can turn into misery if you are caught unprepared. It is always better to have more clothing than you need.
- Check local regulations for sound levels, spark arresters, age limitations, training prerequisites, and necessary registration requirements. Some states may require a temporary user permit for out-of-state visitors.
- Be sure you know the location and operation of all controls on your ATV or motorcycle: brakes, engine stop switch, throttle, shifter, clutch, and parking brake. Learn how to find and use the controls without looking down at them. You will not have time to look for controls when riding or during emergency situations. Control locations may vary from model to model. If you switch to another vehicle, take the time to familiarize yourself with its controls.

- An ATV RiderCourse®, a DirtBike Schools class or another OHV safety training course provides fast-paced hands-on training that includes pre-ride inspection, starting and stopping, quick turns, hill riding, emergency stopping and swerving, and riding over obstacles. You'll also learn about protective gear, local regulations, places to ride, and environmental concerns.

### OHVs In Sand Dunes

- Become familiar with the different signs you see in the dunes and proceed accordingly. If the area you wish to reach is on private property, contact the land owner(s) to obtain permission to access their land. Ask about restrictions.
- Whips and approved flags may be required on all vehicles in sand dunes at certain locations. Contact your local land manager(s).
- Check tire-pressure prior to any trip and daily on multiple day trips.
- First-time duners should always travel with someone who has experience in the area.

### Safety

Safety on the road or trail is critical. Knowing your limitations, your vehicle's limitations, the limitations of the soil or rock surface you're traveling on, and using common sense will ensure your well-being.

- Use of a two-way radio or cellular phone may be very helpful on a trip. Keeping in touch with others in your party is essential and can alert them if you are having a problem.
- Don't drink and drive! Off-highway driving requires every bit of skill and judgment you can command. Drugs and alcohol can lead you and your companions into dangerous situations. If you are on medication, which carries a vehicle/machinery operation warning, let someone else drive.
- Maintain a reasonable distance between you and your fellow OHV drivers. Tailgating can lead to serious injury to you, your vehicle, and others.
- Start every trip with a full fuel tank. Mechanical problems, weather conditions, or other unforeseen problems can turn even a short trip into a long trip.
- A multiple-use road or trail is not a racecourse. Emulating racers you see on television or at sanctioned events can be exciting, but remember, those events are typically held on closed courses and sites monitored for safety. Aside from the potential for creating environmental damage, reckless driving endangers you and others sharing the road or trail.

### Four Wheeling

- Buckle up! Seat belts are mandatory! They help keep you in place on rough terrain. Accidents can happen, even to the best four-wheel drivers.

### ATV and Dirt Bike Riding

- Carry only the number of passengers your ATV is designed for or, as local regulations require. Certain areas prohibit double riding; contact your local land manager(s).
- Always wear a helmet, eye protection, long-sleeved shirt, sturdy pants, over-the-ankle boots, and gloves. Specialized riding jerseys and pants can keep you cool yet dry to combat premature fatigue, while a chest protector and knee pads can be cheap insurance against injuries.
- Pace yourself. ATV and dirt bike riding are physically demanding and can be compounded by high altitude, heat or cold. Drink plenty of water before and during the ride to avoid dehydration. Know your limitations and keep your body "fueled-up" at regular intervals throughout the day. Don't be too proud to take a less challenging route if you feel tired.
- If your ATV or motorcycle is equipped with a headlight, riding with it ON at all times will allow other trail users to see you sooner.
- Be sure youngsters ride the right size ATV or dirt bike. Supervise riders younger than 16.

### OHVs In Sand Dunes

- Ride at your skill level. Don't try to keep up with others if their riding is outside your ability.
- Keep your group together. Slow down if someone lags behind and make all riders accountable for the person riding behind them. Use two-way radios to communicate and designate lead and clean-up riders.
- It is easy to get separated or lost in the dunes. If this happens, climb the tallest nearby hill and make yourself visible.
- In crowded areas make your camp easy to find by flying a distinctive flag and using unique lighting after dark. Consider use of a GPS.
- Global Positioning Systems (GPS) can be an invaluable tool in sand dunes. Not only do they help navigation, but they also help you from getting lost and assist in locating you during rescue.
- Avoid running your vehicle completely out of gas. If you are running low, travel to the edge of the dunes and then make your way back to camp. If you do have to walk out, it is much easier and safer on stable ground.

- A midday “white out” or sun glare may cause loss of depth perception. Use goggles with gradient lenses and reduce your speed when such conditions occur.

### Side By Sides (or UTVs) and Sand Rails

- Every occupant should be buckled in, even if you are planning on driving slowly.
- Make sure your golf cart is equipped with seat belts and a roll bar.
- Lifted golf carts can be unstable and easy to roll at high speeds. Ride at a reasonable pace.
- Side by sides (UTVs) stock brakes are not designed to stop at high speeds. You may want to consider upgrading your cart’s brakes.
- All side by sides (UTVs), sand rails and four wheel drive vehicles should carry a fire extinguisher. They are required in some areas.
- A five-point harness with a crotch belt will hold the lap and shoulder belts down and keep riders in the sand rail.
- Safety features to look for in your sand rail or side by side (UTV) include suspension that will take rough terrain, seats mounted to the frame of the vehicle, properly installed seatbelts, a sturdy roll cage, a skid plate mounted under the seat, and sand tires mounted on bead lock wheels.

## Mountain Biking

### Preparation

- First time to an area? It may be best to try a lower rated trail to determine your personal level of ability.
- Mountain bikers are exposed to the elements and a great ride can turn into misery if you are caught unprepared. It is always better to have more clothing than you need rather than less.
- Be sure your mountain bike is properly tuned.

### Safety

- Wear a helmet, eye protection, gloves, and other personal safety gear.
- Wear appropriate clothing. Select clothing that offers lightweight protection, “breathes,” dries quickly, and keeps you warm.
- Mountain biking requires a high level of skill and judgment. Do not use drugs or alcohol. They can impair your skills, leading to accidents and/or serious injuries. If you are on prescription or “over-the-counter” drugs which carry a vehicle operation warning, don’t ride.
- Pace yourself. Mountain biking is physically demanding. If you are riding at higher altitudes, remember the air is thinner, and you’ll tire more quickly than at lower altitudes. Make realistic goals and stop frequently, at least until you have adapted to the environment.

- Use common sense and know your limitations. If you have doubts about your ability to ride a section of trail, look at the map and see if you can find a route that better matches your personal abilities.
- Maintain a reasonable distance between you and your fellow riders. Tailgating can lead to disastrous results if the lead rider takes a tumble.
- A multi-use trail is not a racecourse. Races have strict rules. Aside from the potential for creating environmental damage, reckless riding endangers you and others sharing the trail.

## Other Outdoor Recreation

Below are a few simple ideas to help in your travels without mechanized vehicles and suggestions on setting up a safe, comfortable camp.

### Foot Travel

- Proper footwear is essential. Choose footwear based on the terrain, the length of your trip, and the load you will carry in your pack. Sandals can be used for short hikes, hiking in water, and around camp.
- If you are carrying a pack for overnight trips, its weight should not exceed 1/3 of your body weight.
- Wear synthetic garments such as fleece or poly-pro. Cotton traps moisture and dries slowly.
- Always bring an extra layer of clothing. Weather can change quickly and temperatures may drop as you gain elevation.
- Carry water and emergency supplies, even on short hikes.

### Pack Animals

- Keep groups small and carry lightweight gear to reduce the number of animals needed.
- Check with land managers as some areas may be closed to pack animals due to overuse or fragile environments.
- Pre-plan camp locations that provide plenty of room and the proper environment for confining animals.
- If possible, do not put new shoes on horses prior to a trip. New shoes cut up the ground more than worn shoes.

## Camping

- Plan for small groups, especially in remote backcountry areas. Smaller campsites are easier to find.
- Plan meals ahead of time. Repackage food in reusable containers. This reduces weight and the amount of trash to carry out.

- Prepare a list of all the required camping gear for your trip and use it to pack.
- Talk to land managers about the location of established campsites in backcountry areas to help plan your travel itinerary.

## Backcountry Sports

### Hunting

- Know the hunter education requirements for your area and, whether required or not, take a hunter education course.
- Hunt only when and where permitted, and know your local hunting laws and regulations.
- Dress in layers and carry a jacket. Know your state's requirements regarding when to wear Hunter Orange.
- Don't mix hunting with alcohol or drugs.

### Snow Sports

#### Preparation

- Dress in layers so you can remove clothing if you get warm or wet and put it on again when needed. The clothing closest to your skin should be non-absorbent so it wicks moisture away from your skin to prevent chills. The next layer or two should be comfortable and loose enough to trap warm air. The outer layer—your bibs, jacket, and gloves or mittens—must be the most protective: as waterproof and windproof as possible, and durable enough to withstand branches along the trail.

#### Snowmobile

- On state or federally managed lands, check with rangers or land managers to clarify which lands are open for riding. Watch for signs at trailheads to verify that snowmobiles are permitted on the trails you are entering. On private land, check with landowner(s) for permission to access their land.
- Check local rules. Ride only where permitted and in areas where you may harm wildlife or vegetation. Remember, designated Wilderness areas are closed to all forms of mechanical use, including snowmobiles. There may be some exceptions in Alaskan Wilderness areas.
- Regardless of where you ride, be sure your snowmobile is properly registered with your home state or province. Learn whether you need special local trail permits or registration where you plan to ride. Some counties, states, or parks require special permits.
- Make sure you are completely familiar with the operation and controls of your snowmobile, and use riding time to get as comfortable

as possible with the machine's power and handling characteristics. Read the Owner's Manual. Make sure to perform regular maintenance and familiarize yourself with basic mechanics such as changing belts and plugs.

- If you or another newcomer needs instruction or riding tips, contact your local snowmobile dealer or snowmobile club. Clubs usually have members who are certified safety instructors; they will be adept at teaching you the basics on riding techniques and safe snowmobiling.
- Wear a helmet when snowmobiling. It is your head's best protection in case of an accident. It is also the best protection from wind and cold. Full-face helmets provide the greatest safety and protection.
- Make sure your helmet fits properly. A helmet should fit snugly, without pinching or hurting. You should be able to slide a finger between your head and the helmet padding. With the chinstrap buckled, you should not be able to pull the helmet forward off your head.
- Snowmobile riders can find themselves in harsh weather conditions. Current snowmobile clothing is excellent at providing warmth and preventing wind and moisture from chilling a rider. Do not cut corners when purchasing riding gear, because it is your best protection against the elements. Be sure to select garments that do not absorb moisture, robbing you of body heat.
- Keeping your feet warm and dry is essential. Choose boots that are waterproof and have a warm lining or insulation, preferably a removable liner you can dry at the day's end. Rubber is the most effective at keeping soles sealed and waterproof. For uppers, thick leather or waterproofed fabrics are good at keeping water from reaching the insulation or liner.
- Some riders, especially those who ride in areas laced with rivers, streams, and lakes, wear flotation suits. These suits provide protective shells and warm insulation as well as internal flotation devices that keep a rider afloat if he or she ends up in water. Look for suits whose flotation materials are approved by regulatory agencies. Remember that this extra protection does not diminish the need for caution near bodies of water.

### Safety

- Pack emergency equipment, which will help with survival if stranded.
- If a person develops hypothermia, warm up the person as quickly as possible by rubbing him or her vigorously and getting him or her into dry clothes. Give the victim warm liquids. Do not give alcohol.

- Know how to build a snow cave for protection. Practice making one during a trailside lunch break. If using a snow cave, check stability daily, and breakdown the snow cave after use.

### Snowmobile

- The number one cause of snowmobile accidents is alcohol. Do not drink and ride. Even one drink impairs response time and judgment, two vital skills for snowmobiling. Alcohol thins blood and allows your body to cool faster, which may be the difference between life and death in an emergency situation.
- Learn the limits of your ability and drive at safe speeds.
- Modern snowmobiles have excellent brakes, but when riding on inherently slippery surfaces (snow and ice), you cannot expect to stop as quickly as is possible in a vehicle. Be aware of your surroundings and of other snowmobilers so you can react and respond in time to avoid accidents. If you cannot stop a safe distance from the snowmobile in front of you, you are tailgating. Leave yourself plenty of room to stop and watch for the brake lights of snowmobiles ahead of you.
- When not on a groomed or marked trail, be aware of unmarked hazards or obstacles hidden beneath the snow, including fences, rocks, gates, and ditches.
- Play it safe as the daylight changes. Terrain and snow contours can be difficult to see at dusk. Reduce your speed, take a break, or stop for the night.
- Ride defensively. Make safety the highest priority when deciding whether to proceed or to give way when encountering other riders and road crossings. Do not assume that other riders or motorists will always see you or respond properly.
- Watch out for trail groomers, especially at night. They are big and typically move at slow speeds on the trails. Make sure you can stop if you round a corner and encounter a groomer. Inquire at trail stops about whether any groomers are on the next stretch of trails you will ride. Always assume that a groomer is on the trail.
- Watch out for oncoming traffic. Make sure your group's leader is a safety-first rider who signals to the group when oncoming snowmobiles are spotted. Both groups of riders should slow while passing each other, and every rider should hug the trails outside edge to make way for passing snowmobiles.
- If you do experience operational problems or breakdown, stay with your snowmobile and stay on the trail.

### Night Riding

- Night riding can be delightful. However, be alert when riding at night and take precautions. Pack emergency gear and notify others of the routes you will take and when you expect to return.
- Avoid riding unfamiliar trails at night.
- Your vision is limited to only what your snowmobile's headlight illuminates, so reduce your overall speed, and take your time when riding at night. Be especially observant of other snowmobiles, road crossings, and hazards such as hills and sharp curves. You should also keep an eye out for nocturnal wildlife. Tinted goggles are effective on bright days but can diminish vision at night.
- Don't override the area illuminated by your headlights. If you ride too fast you may not see hazards on the trail in time to react.
- Consider adding reflective tape to jackets, helmets, and gloves or mittens so you will be more visible to fellow riders.

Finally, one of the best ways to educate yourself is to take a recreation skills class. Local organizations, retailers and dealerships, government agencies, and educational organizations (colleges, universities local school districts, non-government organizations) provide a wide variety of education.

Simply put, a little planning and preparation will make for a fantastic trip. Not only will all aspects of your travel go smoother and safer, you are more likely to leave less of a lasting impression on the environment.

***AVOID SENSITIVE AREAS such as meadows, lakeshores, wetlands and streams, unless on designated routes. This protects wildlife habitat and sensitive soils from damage.***

### The Fundamentals...

- Other sensitive habitats to avoid unless on designated routes include cryptobiotic soils of the desert, tundra, and, seasonal nesting or breeding areas.
- Avoid disturbing historical, archeological, and paleontological sites.
- Avoid "spooking" livestock and wildlife you encounter and keep your distance.
- Motorized and mechanized vehicles are not allowed in areas designated Wilderness.

With the number of recreationists rapidly growing every year, the repeated and often unintentional misuse of land creates environmental damage

especially in sensitive areas. By using common sense and taking a few precautions, recreationists will ensure that the natural places they frequent will remain available and in good conditions for future use.

### For Any Outing

- Always stay on designated roads and trails or other areas open for use (e.g. sand dunes).
- Leave what you find. Avoid picking wild flowers or taking plants and cultural artifacts. These things are best left in their natural environment.
- Avoid “spooking” livestock (horses, mules, cattle, sheep, llamas) or wildlife you encounter on the trail. Move slowly and keep your voices low. These animals should be treated with prudence. Proceed with caution.
- Driving across a meadow or crashing through undergrowth can destroy nesting sites and other sensitive habitat.
- Remember, designated Wilderness areas are reserved for the most primitive outdoor adventure. These areas were set aside by Congress to protect the natural landscape and the wilderness experience. These designated areas are solely for non-mechanized travel—by foot or horseback. OHVs, snowmobiles, personal watercraft, or mountain bikes are not allowed. Please respect the legacy of these areas and leave it to those traveling by foot or with pack animals.

### Snowmobiles

- Ride only where there is adequate snow cover and where vegetation, including young trees and plants, are not visible. Riding in marginal snow conditions and on exposed soil can cause damage to plants and soil.
- Be aware of wildlife you encounter during your ride. Do not approach them. Animals are commonly operating at lower energy levels in winter, when food may be harder to find. Do not scare or chase them away, which will force them to expend precious energy.

***DO YOUR PART by leaving the area better than you found it, properly disposing of waste, minimizing the use of fire, avoiding the spread of invasive species, restoring degraded areas, and joining a local enthusiast organization.***

### The Fundamentals...

- Leave it better than you found it. Carry a garbage bag and pick up litter left by others.
- If you encounter repairable damage on the road or trail, don’t pass it by. Stop and pick up litter, and repair damage as best you can.
- Properly dispose of garbage, sanitary waste, and gray water.
- Follow practices to avoid spreading invasive species.
- Protect the soundscape by preventing unnecessary noise.
- Join a local enthusiast group. They provide great opportunities to learn more about your sport and local recreation areas, volunteer events, and a community to share your experiences with.

### Minimize Use of Fire

- Observe all fire restrictions. If you must build a fire use existing fire rings, build a mound fire, or use a fire pan. Keep fires small and allow it to burn only while in use.
- The best place to build a campfire is an existing well-maintained fire ring in a suitable campsite.
- Using a fire pan is a good alternative to building a fire. A fire pan should have three-inch high sides and be placed on rocks or lined with mineral soil so the heat won’t scorch the ground.
- Mound fires are a great alternative in situations when there is no fire ring or you can’t carry a fire pan. To build a mound fire collect soil, sand, or gravel from an already disturbed site. Lay a ground cloth on the fire site and then spread soil in a circular, flat-topped mound at least six inches thick. Thickness of the mound is important to insulate the ground from the heat of the fire. Make sure the circumference of the mound is larger than that of the fire. The ground cloth under the mound allows for quick clean-up of the fire remnants. Replace the soil where you found it.
- For campfires, use only fallen timber. Gather firewood well away from your camp. Do not cut standing trees. There should be enough wood that its removal for a fire is unnoticeable.

- Let your fire burn down to a fine ash. Ensure your fire is completely extinguished.
- For cooking, use a camp stove. They are always preferable to a campfire in terms of impact on the land.
- Never burn trash in a campfire.

## Waste Disposal

- Wash 200 feet away from streams and lakes. Use biodegradable soap and scatter strained wash water so it filters through the soil.
- Do not wash in streams and lakes. Detergents, toothpaste and soap harm fish and other aquatic life.
- In areas without toilets, use a portable latrine if possible and pack out your waste.
- In areas where use of a cat hole is necessary, human waste should be disposed of in a shallow hole (6"-8" deep) at least 200 feet from water sources, campsites, or trails. Cover and disguise the hole with natural materials. Choose sites in un-traveled areas with good organic soils and, if possible, in direct sunlight to aid in decomposition.
- Cat holes in desert environments require holes to be only 4"-6" deep and the site should be in direct sun to aid in decomposition. Avoid sandy washes where water flows during storms.
- In sand dunes you must pack solid waste out. Sand has no viable microorganisms to break down human solid waste.
- It is recommended to pack out your toilet paper and hygiene products.
- High use areas including river canyons may have other restrictions so check with a land manager.
- Repackage snacks and food in baggies. This reduces weight and amount of trash to carry out.
- Pack out what you pack in.
- Don't litter in the sand dunes! Blowing sand easily covers trash that will reappear at a later date. Broken bottles and sharp objects hidden beneath the sand can damage tires and ruin trips for you and others. Glass bottles are prohibited in some areas.

## Invasive Species

Invasive species are non-native plants and animals that out compete native species for valuable resources within a particular habitat. Sometimes referred to as noxious weeds or aquatic nuisance species, these organisms damage the environment, are costly to remove, and once established are almost impossible to eradicate.

- Following a trip, always wash your gear and support vehicle to reduce the spread of invasive species.

- Learn how to identify invasive species in your area and contact land managers if you discover an outbreak.
- Invasive species are one more reason to always travel on trails. Traveling off trails increases your chances of encountering and spreading these species.

## Protecting the Soundscape

Natural sounds are essential to the health of the environment. Man-made noise can reduce the quality of the natural experience and can be detrimental to the wildlife in an ecosystem.

- Check with a land manager to determine if sound restrictions exist for your form of recreation.
- Make sure your engine and exhaust system are well tuned. Your vehicle will run smoother and quieter.
- Avoid revving your engine or running at full throttle, both of which create unnecessary noise.
- Four-stroke engines run quieter than two-stroke engines and meet the 96-decibel sound level supported by national OHV enthusiast organizations.
- If you are traveling on or around water, remember sound travels faster on water.
- Respect others' desire for quiet solitude and the sounds of nature. Early morning and late afternoon is often the time when people enjoy peace and tranquility.
- Don't overstay your welcome. When traveling by OHV move around and stay away from camping and picnicking areas.
- When camping, remember that others want to enjoy the sounds of nature. Please refrain from playing radios and music loudly.
- Be aware that continued exposure to unnatural noise could cause chronic stress to wildlife. Take appropriate measures to reduce travel in areas inhabited by wildlife.

## Minimum Impact Camping

An overnigher or extended trip requires proper preparation. Here are some helpful tips to assist you in camping with minimum impact.

### General Camping Tips

- Whenever possible, use existing campsites. Camp on durable surfaces and set up tents and cooking areas on a non-vegetated area. Take the time to search for a suitable campsite in areas without designated sites.
- Select a campsite approximately 200 feet off trail and at least 200 feet from any water resource. Camp near boulders or vegetation to screen you from other campers.

- Avoid camping near historical, archeological, or paleontological sites or in areas of sensitive or critical habitat.

### Camping with Horses and Stock Animals

- When selecting a campsite, first consider your stock. The site should be able to accommodate your animals without damaging the area.
- Before making camp, inspect the grazing opportunities and determine whether the area is overgrazed.
- Choose areas where stream banks or water access can withstand hard use and are downstream of the site. Avoid lakeshores and soft meadows.
- Use hitchlines, hobbles, and staking to confine animals. Erect hitchlines in rocky areas with established trees and use straps or “tree savers” to protect bark.
- If you use temporary corrals to contain pack animals move the enclosure at least twice daily.
- Bring pellets, grain, or weed-free hay to areas where feed is limited or grazing is not allowed. This reduces the chances of introducing noxious and invasive weeds.
- When breaking camp remove or scatter manure, remove excess hay and straw, and fill areas dug up by animal hooves.

### Winter Camping Tips

- Choose campsites in a safe location out of avalanche paths and open wind affected areas.
- Camp at least 200 feet from a recognizable water source.
- Avoid camping on designated summer campsites to allow these areas time to recover from summer use.
- Avoid using fires unless absolutely necessary. Use a fire pan. Use dead or downed wood no larger than your wrist. Do not depend on campfires for cooking or heating. Cool ashes should be scattered widely.
- Pack out human waste or dig a shallow hole in the snow to disguise it and ensure rapid decomposition.
- Destroy any snow structures before departing your site. Leaving snow structures encourages others to use the structure, concentrating use. They can also become a safety hazard.

### Hunting

- Pack out nails, ropes, wire, rifle and shotgun shells, and other trash.
- Dismantle meat poles and other structures used while hunting.
- Remove flagging and biodegradable tape used for route finding.

- Provide information to wildlife managers to help manage game and determine wildlife inventories. Report any poaching incidents.

### Geocaching

#### Cache Placers

- Avoid burying a cache in the ground.
- It is the cache owner’s responsibility to maintain the cache and the surrounding area. If a cache’s area is impacted, confer with the land manager on how you will mitigate the impacts and seek their advice as to whether to relocate the cache.
- Never place food items in a cache.
- Don’t modify the environment for any reason, even when hiding a cache.

#### Cache Seekers

- Use maps to find a route that will minimize impacts. Note waypoints during your journey to assist you on your return trip.
- If you notice a path has started to wear in the vicinity of a cache, notify the cache owner via email.
- Practice “lift, look, replace” technique, if you lift a rock to look under it—then replace it exactly as you found it.
- After you’ve finished searching for a cache, the area should look as though you were never there or better than when you arrived.

Joining a local enthusiast organization is a great way to get involved and protect your recreational activities. These organizations provide many services from organized events to educational programming. These organizations are often advocates for your type of recreation within the local community and can provide expertise on area trails, vehicle and gear repair, and recreational skills.

One of the best ways you can preserve the great outdoors is to give your time. Volunteering for clean-ups or trail restoration projects organized by local groups or national events such as National Public Lands Day helps to keep your favorite recreational areas open.

Remember if you abuse it, you may lose it. Careless impact on our natural resources can cause damage and may result in closing of recreation areas. By using common sense and common courtesy, what is available today will be here to enjoy tomorrow. Help preserve the outdoors for yourself and generations to follow by recreating responsibly.

## TREAD LIGHTLY! ON WATER

*These are the basic tools for responsible recreation. In the following pages you will find in-depth information on how to Tread Lightly! by minimizing your impacts on waterways and shorelines. By utilizing these principles and the detailed suggestions provided in the guide, public and private waterways are more likely to remain open for recreation and enjoyment.*

### **TRAVEL RESPONSIBLY on designated waterways and launch your watercraft in designated areas.**

#### The Fundamentals...

- Travel only on waters that are open to your type of watercraft and recreation.
- Understand and practice proper techniques related to navigation on waterways.
- Always operate your watercraft at a safe speed.
- Wear a personal flotation device (PFD) and make sure that you have one available for each person on board.
- Have the required safety equipment in good working order and onboard every time you get underway (audio signaling device, flares (where appropriate), PFDs)
- Comply with all signs and barriers.
- File a float plan with the appropriate parties before getting underway (destination, ETA, etc.)
- Always travel with a partner. Traveling solo can leave you vulnerable if you have an accident or breakdown.

#### Negotiating Waterways

Water recreation is a fun and exciting way to experience the great outdoors. Motor powered vessels offer an opportunity to travel waterways with speed not offered by their human powered counterparts. Still, these machines require smart use to minimize impact on water resources and other users.

#### Motorized Watercraft

- Carry a personal flotation device (PFD) for each person on board.
- Keep your distance and avoid swimmers, water-skiers, and all other boat traffic.
- Never jump a wake.
- Make sure you obey “no wake” zones.
- If crossing a wake, cross at lower speeds and

keep a close look out for skiers and towables.

- Comply with all signs and barriers. This includes speed limits, no-wake zones, and underwater obstructions.
- Because boats don’t have brakes, keep your distance and don’t follow boats closer than 300 feet.
- If you are on a waterway before sunrise or after sunset, turn your lights on.
- If you see a red flag on a tower at marina or harbor, it signifies a small craft advisory. Take action to move toward shore.

#### Personal Watercraft (PWC)

- Travel only in areas open to PWCs.
- Always wear a Personal Flotation Device (PFD).
- When riding make sure that your automatic engine stop lanyard is attached to your PFD, wrist, or clothing.
- If you fall off your craft, always reboard from the rear.
- Do not attempt to ride at night. PWCs are not equipped with lights.

#### Trailing Watercraft

- Make certain your trailer lights work and your watercraft is secure on the trailer before you travel to your destination.
- Balance your load—including items stowed inside your boat. It also helps to empty water and fuel tanks before traveling long distances.
- Make sure your boat is securely tied down to the trailer.

### **RESPECT THE RIGHTS OF OTHERS including anglers, swimmers, skiers, boaters, divers and others to allow them to enjoy their recreational activities undisturbed.**

Respecting the environment and the rights of other users ensures future access to the water and shines a positive light on boaters and PWC users. Oftentimes, the opinions others have of your sport may be based upon contact with a rider or two. Much of water etiquette boils down to common sense. Treat others on the water with respect and courtesy. Of course, in addition to common sense, there are important navigation rules you must be familiar with. Collisions are the most common type of PWC accident, and knowing a few basic rules of the water greatly reduces the risk of accidents. Be a good ambassador for your sport, and make sure that those you encounter are left with a positive image.

## The Fundamentals...

- Show consideration to all recreationists on and around the waters.
- Be courteous to other boaters while in boat ramp areas.
- Keep the noise down—especially around shore.
- If crossing private property, be sure to ask permission from the landowner(s).

## Motorized Boating

- Motorized boats should stay clear of other boats including those not under command, with restricted maneuverability, fishing boats, and sailing vessels.
- Navigation rules do not bestow right of way, but provide a code of conduct to either give-way (stay clear) or stand-on (keep course) preventing collisions on waterways. Boaters should always take into consideration specific circumstances when navigating waterways.
- When overtaking a slower vessel, do so with as much room as possible to avoid rocking the other boat with your wake.
- When anchoring boats don't get too close to other boats. Changing winds and currents can swing boats, causing anchor lines to tangle and boats to bang against each other.
- Always offer help if you see another boater in distress.
- Noise travels faster over water. Keep the noise down especially near shore side residences, campgrounds, and picnic areas.

## Launching and Retrieving Watercraft

- The launch ramp is only for launching and retrieving your watercraft.
- Launch and retrieve your watercraft as quickly as possible.
- Prepare your watercraft including loading supplies prior to entering the launch ramp.
- After retrieval, wipe down your boat and prepare it for travel once you have cleared the launch ramp.
- Courtesy docks are available for loading and unloading; they are not for long term docking.

## Fishing

- Show consideration to all recreationists on and around waterways and on the roads and trails to fishing spots.
- Be courteous to other boaters while in boat ramp areas.
- Understand and practice proper catch and release techniques for the species you are fishing for.
- Dispose of used monofilament line properly.

- Leave ample room for other anglers so as not to disturb their fishing experience.
- If fishing by boat, don't crowd other anglers or watercrafts.

Always show consideration and respect for the rights of others. Whether they're fellow boaters, swimmers, fisherman, or lakeside residents, a little courtesy goes a long way toward creating good will.

***EDUCATE YOURSELF by learning rules and regulations, planning for your trip, taking recreation skills classes, and knowing how to use and operate your equipment safely.***

## Preparation

### Motorized Watercraft

- Boating rules may vary from state to state. Regulations such as operating age and distance from other boats, swimmers, and the shore often differ, so you must know local ordinances before you go. The Personal Watercraft Industry Association (PWIA) model legislation recommends a minimum age of 16 for drivers. In states where children under 16 are allowed to operate watercraft, adult supervision is recommended. These laws apply to all inboard boaters including PWCs.
- Weather, particularly over open water, can change quickly. It's crucial you get a weather forecast before setting out for the day. This will allow you to dress and plan accordingly. Also, keep a close eye on the skies when on the water. While riding, watch for increasing winds, darkening skies, lightning, and thunder. When faced with adverse weather, return to shore. If caught in bad weather and faced with threatening waves, reduce speed and approach waves at a 45-degree angle.
- Modifications to your craft may reduce safety and reliability and may make the vessel illegal to use.
- Make sure you have enough fuel and oil for your entire trip. Waterways aren't like the open road, and fueling opportunities are far less frequent. Think ahead; fill up on gas and oil before leaving, bring extra fuel if necessary, and know where potential fuel stops will be along your route. A good rule of thumb is to use no more than one-third going and one-third coming back; that way you'll have one-third in reserve in case of an emergency.
- Know your machine and study your manual! Jumping on and taking off is a lot more fun than reading the Owner's Manual first, but you'll have more fun and fewer problems in

the long run if you take the time to understand your machine's operating characteristics by reading the information the manufacturer has provided. Be sure you are completely familiar with the controls and operation of your watercraft, and be comfortable performing basic maintenance.

- The best teacher is experience. Learn from someone very familiar with your type of watercraft, and, if possible, take a boating education class. Your local dealer, state Department of Natural Resource (DNR), or Coast Guard (800/366-BOAT) will know of low-cost or free classes in your area.
- Maintenance is vital to keep your machine running trouble-free. Even casual inspections before and after you recreate can prevent problems.
- More involved maintenance should be done on a regular basis. If you are uncomfortable performing any of the suggested functions, have your local dealer tend to these tasks. It will be worth it in the long run.
- Pack a tool kit and carry a towrope in case you or another boat needs a tow.

### Personal Watercraft (PWC)

- Licensing regulations for PWC vary from state to state. Check with your local dealer, enthusiast groups, or state department of recreation for the laws in your area.
- Consider purchasing PWC insurance.
- PWCs come with a standard tool kit. While not fancy, the tool kit includes plug wrenches, screwdrivers, other wrenches, among other tools: everything you need to complete a minor fix.

### Basic Water Safety

- Use the buddy system; never swim alone.
- Swim when a lifeguard is present.
- Follow all posted rules. If no rules are posted, use common sense.
- A PFD is recommended for inexperienced swimmers when around the water.
- Swimmers with limited water experience should stay in water less than chest deep.
- Know the water you are in and all possible dangers associated.
- Do not swim if there are indications of bad weather.
- Do not dive headfirst unless the area is clearly posted for diving.
- Learn to swim. Seek out your local partners in the community that offer swimming lessons.

## Safety

Boating is meant to be fun. You can keep it that way by using common sense and following a few simple guidelines.

### Motorized Watercraft

- Don't start your engine if you smell gas vapors. Check the engine compartment, and identify where the smell is coming from (i.e. fuel line, gas tank, engine). In addition, it's never a good idea to smoke near your watercraft.
- Always carry a U.S. Coast Guard approved, working fire extinguisher with you when boating. It's the law, and all watercraft have specific places to store the extinguisher. Periodically, check the canister to be sure it is still pressurized.
- It is essential that you know distress signals and warning symbols. Local clubs, dealers, or the Coast Guard can provide you with this short list. You should also carry on board, a whistle, flares (which are particularly useful when riding on a large body of water), a distress flag, or a brightly colored cloth.
- Don't overload your boat. It is dangerous because boats lose buoyancy and stability, risking capsizing.
- Be aware of your surroundings at all times so you can react and respond in time to avoid accidents.
- Be sure to teach new users how to ride/drive the watercraft, and better yet, see that they take a boating education class.
- You must report all accidents within 10 days when property damage exceeds \$500. Fatalities and missing persons must be reported immediately, and formal reports are due within 48 hours. To know whom to report to, be familiar with the entity that manages the waterway and numbers to call in case of emergency.

### Personal Watercraft (PWC)

- Stay within your ability. It is natural for people to want to push their limits, but remember you are on a high performance vessel capable of high speeds in an environment that can change suddenly and without warning. Beginners should always start at low speeds in uncrowded areas and gradually work their way into more advanced riding.
- Ride in control. PWCs have become more powerful each year and can now cross a lot of water per second. Racing should be saved for sanctioned events.
- Know and observe all speed limits; it's your responsibility.

- Remember that you must apply throttle to steer. If you try to steer without depressing the throttle, the craft will continue in its current direction.
- Know your PWCs load and towing limits, and do not go beyond the established weight limits.
- Many PWCs are capable of pulling a skier. In addition to the driver and skier, you should have a “spotter,” someone who sits on the back of the PWC and monitors the skier.
- Pulling a skier requires a towrope of reasonable length. A good rule of thumb is to stay at least twice the length of the rope away from any object or potential hazard.
- Be aware of all traffic and objects in your area. The sun can often distort or disguise objects, so pay attention to what is going on around you. Because of a PWCs small size, swells, obstructions, and other boats can affect sight lines, so approach other objects with caution. Do not operate directly behind other vessels and do not turn sharply so that other boaters cannot avoid you.
- Riding a PWC can be strenuous and tiring, and the wind and sun quickens fatigue. Use sun block and take frequent breaks. When you are tired, you are more susceptible to accidents.
- Be sure to keep your lanyard attached to your wrist, PFD, or clothing as appropriate. Its smart, and it's the law.
- You and your passengers should wear a Coast Guard approved Personal Flotation Device (PFD) which is acceptable for PWC use. All PFDs contain information regarding the type of PFD it is. Based on Coast Guard statistics from the early 2000s, approximately three out of four boat drowning victims were not wearing a PFD, and the vast majority of accidental boating deaths were due to drowning ([www.uscgboating.org/statistics/accident\\_stats.htm](http://www.uscgboating.org/statistics/accident_stats.htm)). As a PWC user, you are far more likely to fall into the water than any other boater.
- No boater spends more time in the water than a PWC user. Falls can be a fun, sometimes a welcome part of riding. However, reboarding can be difficult, especially in deep waters. Always reboard your craft from the rear, and ride carefully and slowly in traffic to avoid unwanted spills that may make reboarding difficult.
- You and your passengers should also wear appropriate protective clothing, such as wetsuits. You can receive severe internal injuries if you fall into the water or are near the jet thrust nozzle. These activities may force water into body cavities. Normal swimwear does not prevent water from entering body cavities. Wetsuits can also help to protect against hypothermia and abrasions.
- You may want to consider sunglasses or goggles, as they can protect your eyes from the wind, water, and sun. However, you might find that they are distracting or distort your vision.
- Water gloves and footwear (booties) are also recommended. Gloves can help keep blisters at bay and protect you from cuts and bruises. Booties help protect feet from injuries caused by underwater objects.
- Make every effort to ride with a partner, even if that person is on a different kind of boat. Not only is there fun in numbers, but also riding with at least one companion is essential to your safety. The buddy system is vital to assure quick assistance should problems arise. If your group only has one boat, stay within eyesight of shore.
- PWC are not equipped with lights. Therefore, do not attempt to ride at night.

### Survival in the Water

Boating is a safe, fun activity, but as with any sport, potential risks are involved. Knowing what to do in case of an emergency could save a life.

- Knowing first aid is not the law, but it is a smart idea. Being familiar with resuscitation, heat exhaustion, hypothermia, and how to treat a wound can be invaluable.
- Any exposure to water that is colder than your core body temperature (98.6 degrees Fahrenheit) can eventually elicit symptoms of hypothermia. Riding in water of less than 70 degrees greatly hastens the risk; so always wear a wetsuit or dry suit in these conditions. Signs of hypothermia include shivering, dizziness, confusion, drowsiness, numbness, weakness, and impaired judgment and vision. Get any victim of hypothermia out of the cold and into dry, warm clothing as quickly as possible.
- If you fall in cold water, reboard your vessel as quickly as possible. You lose body heat 25 times faster in water than from air of the same temperature.
- Do not give the person with hypothermia anything to eat or drink unless he or she is fully conscious, and NEVER give the victim alcohol. Warm the victim's body slowly. After full consciousness is restored, feed the victim warm liquids and/or soup.

## ***AVOID SENSITIVE AREAS and operating your watercraft in shallow waters or near shorelines at high speeds.***

- Always launch at a designated boat ramp. Backing a vehicle on a riverbank or lakeshore can damage the area and leads to erosion.
- Always travel slowly in shallow waters and avoid waters less than 2\_ deep.
- High speeds near shorelines leads to large wakes, which can cause shoreline erosion.
- Sensitive areas to avoid include seasonal nesting or breeding areas.
- Avoid disturbing historical, archeological, and paleontological sites.
- Avoid “spooking” wildlife you encounter and keep your distance.
- When anchoring choose areas with no aquatic vegetation which can be damaged by dragging anchors.
- Motorized and mechanized vehicles are not allowed in areas designated Wilderness.

## ***DO YOUR PART by leaving the area better than you found it, properly disposing of fuel, oil and waste, avoiding the spread of invasive species, restoring degraded areas, and joining a local enthusiast organization.***

- Pack out what you pack in.
- Carry a trash bag and pick up litter left by others.
- When filling up your boat take every precaution not to spill into the water.
- Observe proper sanitary waste disposal or pack your waste out.
- Following a trip wash your gear, watercraft, and support vehicle to reduce the spread of invasive species.
- Don't mix driving with alcohol or drugs.

### **Waste Disposal**

- Use marina pump-out or dump stations to remove sewage. If you don't have an installed toilet use a portable toilet or on shore facilities.
- Keep your trash on board and discard on shore in garbage containers. Never dispose of fishing line, cigarette butts, or other garbage into waterways.

- Recycle whenever possible. If a marina does not recycle encourage them to start a program.
- Dumping plastics in navigable waters is illegal in the United States. Marine animals sometimes confuse plastics for food or get entangled in it. Both are often fatal. Plastics can also entangle propellers or clog intakes damaging watercraft.

### **Fueling Watercraft**

- When filling your craft with gas and oil, take every precaution not to spill into the water. You may think a few drops don't matter, but if all boat users shared that attitude every time they filled up, the damage would be significant.
- Use a fuel collar or bib when filling up to catch drips and overflow and prevent backsplash.
- Be prepared; carry a spill kit, which includes absorbent pads, socks, and booms.
- Keep your engine tuned to prevent fuel and oil leaks.
- Do not add soap to disperse fuel and oil spills. It only increases damage to the environment.

### **Invasive Species**

Aquatic nuisance species are becoming a costly problem in our waterways. These non-indigenous species threaten the health and diversity of the aquatic ecosystem.

- Make sure to remove all plant material from watercraft, motor, trailer and other gear and dispose on dry land in a garbage container.
- Drain livewells, bilge water, and transom wells at the boat launch prior to leaving.
- When you get home, wash your boat, gear, and trailer with hot water.
- Flush water through your boat motor's cooling system and other parts of the boat that normally get wet. If possible, let everything dry for five days in the hot sun before using your boat in another body of water.
- Empty bait buckets on land, never into the water.
- Never dip your bait or minnow bucket into a lake if the bucket contains water from another lake.
- Never dump live fish or other organisms from one body of water into another one.

### **Fishing**

- Never discard fish entrails in lake shallows or any area where others might come across it. It is unacceptable to bury it near the lake or stream or burn it in camp. Suitable alternatives include, bagging and packing out entrails, disposing of it in water at least 25 feet deep, or

burying it 100 yards away from any lake, trail, or camps.

- Avoid using lead weights, which, if ingested, is toxic to wildlife.
- Use only artificial lures. Live bait has to potential to accidentally introduce exotics and cause more damage to fish when being released, as they often take live bait deeper.
- If practicing catch and release use barbless single hooks to make release easier. Return fish quickly, handling them with a wet hand to minimize affects to the protective coating on fish skin.
- Minimize fishing during spawning periods.
- Release smaller fish as they are forage for many residents of the ecosystem. Larger and older fish are often the best producers, collect more contaminants, and are less healthy to eat—also making them good choices for release.

Finally, join a local club! Clubs are a great way to meet people with similar interests, pool resources, and share experiences about trips and riding. They often organize or provide information about service projects around your favorite recreation spot. Contact your local dealer for information on boating and PWC clubs in your region.