

## Water and Snow Kite Risk Management and Key Skills

### Conditions and Sites

- I first learned water kiting in the Columbia Gorge. My instructor taught me a couple key principles to begin with:
  1. This is not windsurfing or sailing. This is aviation. You are attaching yourself to a flying machine.
  2. Accordingly, treat it like you would an airplane. Go through your preflight checklists. Do not fly in conditions you would not fly a Super Cub or an ultralight aircraft in! Strong turbulence, updrafts, squall lines, thunderstorms, hurricanes, offshore winds, dangerous ground conditions, or high gust-to-lull ratios are NOT conditions to kite in; go do something else on those days!
- People can get killed or seriously injured if they are careless with kites. The “kite-mare” videos on You Tube are people who have violated the risk management rules. Kite intelligently; take all the precautions you can. There is enough risk from mistakes even the most careful riders will inevitably make. Don’t end up on You Tube!
- Like aviation, the risk if you try to teach yourself or have your buddy teach you is high, but if you learn from a good teacher and follow the proper procedures, the risk is in the same range as any other active sport like skiing, snowboarding, and mountain biking.
- You want 100 meters, a football field’s length, of downwind space that is clear of anything that might hurt you, or anything you might hurt, especially when launching, landing, or practicing maneuvers.
- You will get dragged and possibly lifted into the air inadvertently sometimes, especially with full-length lines. Don’t panic! This is common and is no big deal if you have chosen your kiting location wisely. Sheet out or just let go of the bar to depower. Reach up and grab the brake strap to land snowkites if you need to. In water, surf along on your belly as you fly the kite back up. These powered-up moments are the result of flying the kite too fast and too deep through the wind window, and the good news is that the kite will depower either when it hits the ground/water, or when it flies up and reaches the front edge of the wind window.
- On water, offshore winds are potentially dangerous. So are strong or offshore currents.
- On snow, check your location for obstacles that will produce turbulence, and for such hazards as overflow water and thin ice on lakes, icy patches, rotten snow, breakable crust, sastrugi (rough, corrugated snow surface), crevasses, trees, bushes, rocks, bare spots, gullies, power lines, fences, posts, signs, people, dogs, children, or vehicles.
- As the Real Kiteboarding videos stress, “No whale-watching!”. Stick close to shore and make sure the downwind shore is a friendly one in case breakdown, injury, or dying wind force you to come in. We teach self-rescue, but remember that it is much harder to swim a kite in to shore than to swim a windsurfer or surfboard in.

- Check your location for obstacles that will produce turbulence, and for such hazards as dangerous surf, pilings, rocks, barnacles, slippery seaweed, too-shallow spots, human-made debris, sharp objects, power lines, fences, posts, signs, people, dogs, children, or vehicles.
- Helmets are mandatory. Don't even think of kiting without one.
- In cold water like we have in Alaska, a good wet or dry suit with hood, thick zipperless booties (5mm is OK for most), and warm gloves (3mm for warmer waters) or lobster mitts (for winter or glacial waters) keeps you not only comfortable, but alive. Don't skimp; be sure you are warm enough for a long body drag or swim to shore.
- We speak of tube kites and foil kites. To relaunch from water, kiteboarding kites have inflatable tubes along the leading edge, and several struts to give them shape. Most foils (like parachutes or paragliders) will not relaunch from the water, but we prefer them for snow use because they are simple, light enough to carry easily and fly in very little wind, and less expensive.
- There are some specialized foils with intakes adapted to retaining air for water relaunch. Those foils can be used for either water or snow. They take some advanced technique to fly, but are exceptionally light, versatile, and can be phenomenal light-wind kites.

### **Kite Care**

- You can destroy a kite by crashing it fully powered into the ground or water. This applies to trainers, larger foil kites, and tube kites. You will burst the seams or pop the bladders. The repairs can be costly. So when you are getting dragged or otherwise about to crash the kite, either steer it back up toward the sky, sheet out, run rapidly downwind, or just let go of the bar!
- Don't set up, launch, or land in or close upwind of sharp things. Kites will unpredictably fade downwind and drop into things that will pierce and tear then.
- Take care rolling and stowing the kite. Be sure bridles are not tangled, and the kite is as clean as possible. When doing a messy job due to strong wind, unfold and redo it indoors.
- Dry the kite! If you cannot get it dry in the field, spread it out to dry at home. Wet kites can mildew.

### **Launching, Landing, and Lines**

- Most kite injuries occur while launching with full-length lines. A small control bar error or a fouled line on launch can put the kite into the power zone and lift or drag you very quickly. Double check everything before launch, and be at your most alert. Rehearse your "what if" moves just before you launch so you are primed to react swiftly. We teach with short lines to reduce the power the kite generates, making for a much lower-risk learning process.
- RED IS LEFT! Before launching and after every time you let go of the bar, whether in a crash or to un-twist the lines, glance down and be sure you have the red side of the bar in your left hand. There is no surer way to unintentionally fly the kite into the power zone or crash it hard enough to destroy it than to have the control bar reversed!
- Kite lines are dangerous. Stay upwind and clear of the lines! Kites can fade downwind and drop suddenly in a lull or downdraft. The lines can entangle someone and when the kite re-powers and lifts, they can easily cut flesh. Do not ever wrap them around your hand or fingers when they are attached to a kite and there is any wind. Be sure

your kite is secured prior to launch and after landing, watch for dogs and kids that might run into the “drop zone” under your lines, and be sure any bystanders watch from well upwind.

- Before you launch, be sure you have a workable plan to secure your kite when you land it!
- Tube kites are launched at the edge of the wind window. When helping to launch kites, stand at the edge of the window. Be sure the pilot has everything ready and has given you a first thumbs up before standing the kite up and preparing to launch it. As you stand the kite up, be sure all the lines lead cleanly from the kite and are not caught on a tube or attachment point, and that they are not crossed.
- If the kite you are about to launch is strongly powered, move a little upwind until it is ready to take off gently. If it is underpowered and luffing (flapping), move a little downwind. Confirm that the pilot is ready and has given you a second thumbs up before releasing it. Wait until it feels like it wants to rise before you let it go. Don't throw the kite! Point the leading edge slightly toward the sky; do not let it lay back to where it will take off too fast and fly straight into the power zone.
- A hand patted on the head is the signal for requesting assistance in landing. Repeat the signal back to answer that you will help. Do not ask people who do not know what they are doing launch or land your kite; they may endanger you and themselves!
- When catching someone's kite on landing, watch the kite. Stay just outside of and a little upwind of the kite. When it comes low enough, dash in without hesitation and grab it by the leading edge.
- Tube kites are best landed by having someone catch them. If you are alone, the surest way to land them is to use the chicken loop release. You can also land by flying them carefully into the eddy behind an obstacle so they land with the leading edge upwind, but you have to make sure they will not relaunch before you can get to them, and be ready to hit the quick release if they tumble or drift too far downwind. After the kite lands, quickly move downwind as you pull one outside line to rotate the kite into the parked position, before unhooking.
- Carry tube kites upside down by the leading edge tube, allowing them to flag out in the breeze.
- To park tube kites, flip them over so the leading edge is down and the closed end of their horseshoe-shaped footprint is upwind. A little sand for weight is usually enough to keep them from relaunching or sliding.
- We use a straight-downwind “hot launch” for foil kites if we already have skis or snowboards on, and for trainers. Be sure to first set the trim to depower, and sheet out as the kite takes off. Do not try this with water kites on land, and if the wind is strong, launch foils at the edge of the window by assisted launch, or by folding the lower kite edge over and weighting it with sand or snow for self-launch.
- We usually land foil snowkites using the brake strap or leash.
- For short breaks, land foil kites with the brake strap. Hold the strap or drive both skis or your snowboard into the snow on the kite side of the brake strap to hold it. You can also anchor to a carabiner on a loop of webbing or rope on a tree, or a loop and ‘biner from a snow picket, from an ice axe (with care that it does not pull straight up and come out!) or from an ice screw for lakes with thin or loose snowcover. A braked kite

can still flip over and pull quite hard, especially in gusty wind, so be sure any anchor is secure before you unhook.

- If you are going to leave foil kites, secure them further by laying them out flat, trailing edge upwind, and weighting the trailing edge with snow. Don't get snow in the leading edge openings!
- To land a foil kite when it is very windy or turbulent, pull the brake strap. The power will increase for a moment before the kite stalls and turns inside out. Don't panic; keep a steady pull until the kite lands! Then pull in hand over hand on one of those brake lines to flag the kite out so it cannot relaunch. Carefully go down that line to the kite, kneel on it, roll it from the end, and stow away.
- Ozone foils now have a fifth line for full flag out release, so you can release the chicken loop if the wind is so strong or turbulent that the brake strap is not enough depower for safe landing.
- Land foil trainer kites with the flagout leash (by letting go of the bar) if they have one, have someone catch them, or fly them into tall grass or the eddy behind an obstacle. Secure them once they are down by laying them out flat, trailing edge upwind, and weighting the trailing edge with sand or rounded gravel. Don't get sand or gravel in the leading edge openings!
- The kite takes you where you point it. Except for small trainer kites, don't stand around with your kite pointing straight up, at twelve o'clock! Any gust or updraft will lift you. Land the kite, point it toward soft things, or point it in the direction you want to go. Reserve the twelve o'clock position for stopping, getting up, and for intentional jumps. You'll see lots of kites breaking this rule; don't follow their example - they just don't know better!

### **Launching and Post-Launch Checklist**

- Kite set up so it will not blow away before you are ready. For foils, kite upside down, trailing edge upwind and weighted; or at the side of the window, leading edge upwind, kite parallel to wind, bottom wingtip folded over and weighted with sand or snow. For tubes, kite in horseshoe position with leading edge down, bridles down, closed side upwind, open downwind, and weighted as necessary.
- Tube kite pressure is adequate and struts' air tube clips are shut so you will not lose all air in a puncture. Pressure for Ozone kites is 8 psi (55 Kilopascals, or 0.55 bars), but most air pump gages are inaccurate. The kite should be hard to pump and a finger flicked against the leading edge should make a high-pitched ringing sound.
- Bridles checked and clear, no tangles or hangups, no weak or worn spots..
- Lines combed and clear. In good shape. Double-check from both ends to be sure they run clear all the way, especially so with tube kites. Red to red and blue to blue. Clear lines are critical to your risk management, so do not hesitate to check again!!
- Red on left before launch. Red will be on left already when setting up foils; bar should need to be flipped only when setting up tube kites upside down, with lines running downwind from kite.
- Trim set for minimum power (front lines as short as they can be; clamcleat line pulled in all the way on Ozones).
- Bar sheeted out.
- Release mechanism checked and cleared of sand or ice as needed.

- First clip in the leash, then hook in. Check to be sure chicken finger is set so it has no pressure that might push it out of position.
- Check that kite is in ready position. For tube kites or for foils in strong wind, that is downwind enough of you to fly but not to have too much power; still at edge of window.
- Final hazard check - people, animals, site issues, traffic, turbulence, gusts, or approaching weather. Review quick release motion to prime brain for quick response if needed.
- Review motion for quick release so you are primed in case anything goes wrong. Double check red on left, trimmed for minimum power, sheeted out.
- For assisted launch, signal helper with first thumbs-up to raise kite. Check lines from your end; helper confirms that they are clear on their end.
- For assisted launch, give second thumbs-up for launch, and gently steer the kite up.
- Check to be sure lines are clear before the kite gets very high. Land it right away or hit the quick release if you suspect anything is wrong. Be sure the kite sheets and steers properly, trim is still de-powered, and chicken loop is seated properly.

### **Stopping and Speed Control**

- To stop, edge hard and steer the kite slowly but steadily up to twelve o'clock.
- The simplest way to get more or less power:
  1. For more power, move the kite! Fly it into the power zone and keep it moving.
  2. For less power, keep the kite still and sheet out!
- When a gust hits while you are riding, sheet out and edge hard, using the power to point upwind. The kite will move toward the front edge of the window and depower. For most gusts, this is enough.
- Occasionally, you will be hit by a series of gusts that still cause wild acceleration and the feeling that you are totally losing control. Don't panic; if you do you WILL lose control! Instead, settle your stance while still stood-up and sheeted out, then set your edge(s) HARD like you are trying to stop. You're not actually trying to stop with your edges; you are trying to move the kite to the edge of the window and dump power. This move is remarkably effective, usually taking you from the edge of losing it back to kiting comfortably, but you must do it decisively. Practice and master this essential maneuver before you need it!
- You can also just head downwind. Not just a little, which will cause more acceleration, but enough to slack the lines. Or you can jump, which also dumps kite power, if it's not too turbulent. Neither of these moves are more than temporary fixes, but they help in big gusts.
- If you keep having to dump power, it is time to grab a smaller kite!
- To get to shore when the wind suddenly comes up and you are too overpowered to kite in, land the kite gently on the water at the edge of the window, totally sheet out, and set the trim to depower. The kite will bounce up and down, staying upright on its wingtip, ready to launch at the front edge of the window. Take the board off and do a body drag with board to get to shore. Keep the kite on or near the water surface to minimize power, and hit the quick release as soon as you are safely into the shallows. Do NOT leave the water while flying an overpowered kite!

- To land an overpowered foil kite, pull the brake strap, pull the brake strap hard and hang on until it responds, or use the chicken loop release on the newer Ozone foils with fifth line.

### **Emergency Sequences**

- Always be ready to hit the release if needed when launching or landing. Mentally rehearse the motion and move your hand to prime your brain and muscle memory for quick response.
- The first remedy when something goes wrong while on land without skis or board is to sheet out and run down wind. This will slack the lines and move the kite to the edge of the window. But don't rely on this; have your hand already in place, ready to initiate the second step.
- The second step with a foil kite is to hit the brake strap to flag and land the kite. Power will increase for a moment before it drops, so pull hard and don't let up. If for some reason that does not work, releasing the chicken loop is the next step.
- The second step with a tube kite is to hit the chicken loop quick release to flag and land.
- If the kite is somehow bow-tied and powered up and you are about to be seriously hurt, the next and final step with any kite is to hit the quick release on the leash and ditch the kite. Don't do this lightly; you lose the kite and it will attack anyone who is downwind. But if the alternative is death or injury, get rid of the kite!

### **Traffic and Right of Way**

- As a sail craft, you have right of way over power boats and jetskis, but most operators are totally unaware of this, so don't push it! You are much smaller than they are. Give wide berth, and remember that if you cut in front of them and the wind quits, as it will if they are casting a wind shadow, you will stop right in their path.
- Remember that you usually face downwind and are blind on your upwind side. Keep looking over your shoulder for approaching boat traffic and stay aware of the position of any kites upwind of you.
- Starboard tack (right hand forward) has right of way. But many do not know this, so ride to avoid collision regardless.
- Downwind kiter has right of way; but similarly, don't force the kiter upwind of you to pinch so hard upwind that they lose way.
- Overtaking kiter avoids slower kiter.
- Jumping kites yield to those not jumping, but don't hold so strongly to this that you get landed on or hit!
- Upwind kiter keeps kite high; downwind kiter keeps kite low. Very important!
- Look first before you change tacks with a transition.
- Clear crowded landing and launches quickly.
- Always be thoughtful about preserving kiting's good reputation. Do not interfere with other peoples' enjoyment of places we share, hog all the space, or endanger others. Be friendly and answer questions when you can.

### **Resources**

- Real Kiteboarding's instructional DVD series is the best. *Zero to Hero* and *Evolution* are the first two. The first one is not quite as good as the others, but from *Evolution* on, they are great. *Joyride* and *Surf* cover jumping, performance riding, and wave-riding

skills. Available online for \$29.99 each plus shipping here <http://www.realwatersports.com/gear/kiteboarding/dvd/>

- The Alaska Avalanche Specialists/Alaska Windjammer Kite Shop website is <http://www.akavalanches.com/>. The About Kiting page has detailed information on where to kite throughout our region. Our avalanche and kite course handouts and resources page is [http://web.me.com/snownerd/AAS\\_Avalanche\\_Course\\_Materials\\_Site/Course\\_Materials\\_Page.html](http://web.me.com/snownerd/AAS_Avalanche_Course_Materials_Site/Course_Materials_Page.html)

### **Other Schools**

- [Real Kiteboarding](#) in Cape Hatteras, North Carolina may be the best kite school out there. Hatteras is a kiter's paradise, with Pamlico Sound on the inside, a huge area of flat, calf to shoulder-deep water with steady winds and hot summers. Their three-day kite camps are not cheap, but are well worth if for excellent coaching and facilities. The most economical access is to fly Southwest from Seattle to Norfolk, Virginia, and rent a car for the three to four-hour drive to Hatteras.
- Mark Worth at [Gorge Kiteboarding School](#) in Hood River, Oregon, got me started. The teaching venue in the Gorge is cramped and crowded, and the Gorge can be an intimidating place to learn kiting, but Mark is a pioneer Gorge kiter and excellent instructor. His teaching is geared to learning how to kite in places with strong, gusty wind, current, boat traffic, and rocky shores - exactly the skills you need for kiting in Alaska.
- IKO (International Kite Organization) instructors and schools are worth seeking out. They will use the short line teaching methods, and we have found their training and their teaching tips really helped us to better assist our students.

### **Pre-class Preparation**

**The best thing you can do to prepare for kiting lessons is to buy or borrow a foil trainer kite and put in as much practice time as you can with it beforehand.** It will take a few hours to really dial in the basic skills, preferably in several sessions so you practice in a variety of conditions.

The more practice time you put in before your lessons, the stronger your kite skills will be and the more benefit you will get out of the lessons. You want to practice your basic kite handling skills into muscle memory, so you don't have to think about them. Work systematically through the trainer kite exercises in the key skills list below.

Trainers with a three or four-line flag-out release system are strongly recommended; if you can only get a two-line kite just be sure it is 2m or less and don't fly it in strong winds.

### **Key Skills**

- Risk management
- Etiquette
- Gear care
- Practical kite theory
- Foil trainers

- Foil kite setup and packing.
- Risk management and gear care review.
- Foil trainer exercises: launching/landing, short turns to get the feel of the kite, exploring the edge of the window, move slow/move fast, stop at each “hour”, power strokes: shallow “kitty sips” at edge of window, longer strokes deep in window; relaunching; lulls and gusts; walk upwind and downwind; fly kite one-handed on each side; practice simulated runs beginning with power strokes to start, then running with the kite parked, bringing it up to 12 o’clock while “edging” to stop.
- Tube trainers
  - Tube kite setup, preflight, launching/landing, and packing.
  - Tube trainer exercises: tube kite feel, using harness and chicken loop, relaunching, generating more power.
- In the water and on the beach
  - Kite sizing.
  - Control and release systems.
  - Self rescue tactics and practice.
  - Launching and landing tube kites with a helper, including preflight and post-launch checklists. Launching and landing on skis and snowboards. Anchoring kites on snow and ice.
  - Superman survival; what to do when kite lifts or drags you.
  - What to do when overpowered.
  - Practice flying full sized tube kites.
  - Understanding trim system.
  - Practice using release systems, including setting up to relaunch.
  - Body drags, no-board upwind and downwind, with board.
  - Water relaunching.
  - Body dragging, board recovery practice.
  - Feet-first controlled drift.
  - Same with board on.
  - Stopping and coming back.
  - Water start.
  - Stance and riding.
  - Speed control.
  - Dealing with lulls and gusts.
  - Troubleshooting problems.
  - Sliding transition or ski/snowboard turns.
  - Generating smooth power.
  - Heelside turns.
  - Landing, parking, and stowing kites in strong winds.
  - Self launching and landing techniques.
  - Heelside and toeside turns.
  - Jumping.
  - Strong winds, riding and body drag in with board.
  - Kiting upwind.
  - Kiting downwind.
  - For snow, handling hills and touring up and downwind.