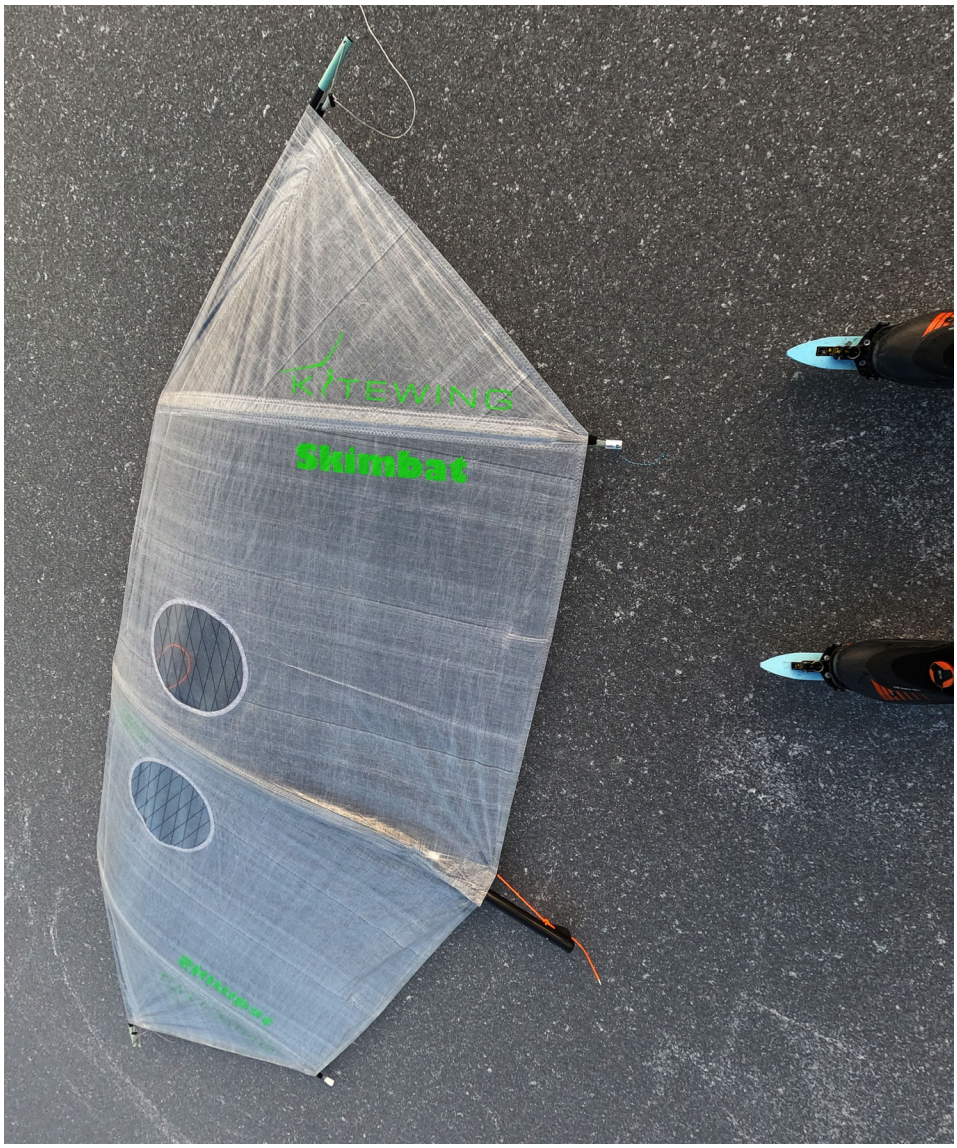
AMERICAN SKIMBAT

JAN 2024

Whats New

Rigging

Sail Safe: Check the Ice



Dyneema Skimbat sail modified with windows and a tack tensioner. DEC23

WHATS NEW AT KITEWING

We continue to experiment with rigging and sailing technique. Rigging is always an evolution. The more time we spend sailing the better we understand the rigs.

Reviewing video and pix from the last two seasons, rigging without Y tubes is not just a neat trick. Saving weight by not using the Y tubes makes our latest frame adaptable to a wide range of sailing conditions. Light weight rigs fly sooner. Rigging without Y tubes also reduces the drag signature.

In heavy air Y tubes provide additional stiffness as well as control.

Without Y tubes the rig is more aerodynamic with a smaller drag signature.

Kitewing 3.0 TW is new this season.

3.0TW is built on a modular 8D frame system. It borrows parts from the Skimbat and SK821. The new frame is based on a carbon front tube which breaks down to three parts. The wing can be stowed with all its parts inside a short package.

The 3.0 TW can be tuned through a wide range of shape. The rig can be tuned flat for heavy air or higher speeds. The wing is light, it flies its own weight at very slow wind speeds.

The 8D frame system is based on a central front tube which can be rigged with or without Y tubes. Y tubes stiffen the frame, they are easier to learn. Y tubes add about a pound.

Front tube extensions plug in to the 8D center tube. The three part front tube is readily adapted to extended luff lengths by changing front tube extensions.

Front tube extensions remain within the luff tube of a stowed sail.

One frame with battens and booms can be used to rig at least three sails from one bag.

Our frame system is simple and easy to rig with less parts.

Saving almost half the weight of aluminum and fiberglass parts by using carbon parts makes a big difference.

There are three **proto type rigs in stream** with the 3.0 TW. There is a 5 sqM rig with tip wands and an additional 5 sq M rig which uses the very light weight tapered tubes same as the Skimbat.

8D frame system continues to rely on the old tip wand. Our own tapered Skimbat tubes are very light weight but fragile compared to the historic tip wand.

We think the tip wand is a nice choice, it is easier to carry a spare. Tip wands are a known durability factor. Kitewing hand held wing sails have relied on the tip wand for a long time.

Sails: Dyneema is very resistant to stretching, it is light weight and strong. Dyneema sails can be rigged tensioned tight to frames which makes the wings stiffer and more inherently stable. We think the Dyneema is worth the extra cost.

Parts support: Kitewing continues to offer parts support for older wing models. We continue to support the older traditional designs at our web site.

Kitewing 3.0 TW NOV23

RIGGING: We can rig your wing for you. However we want you to learn to rig it yourself. Understanding the nuance of the strings is a puzzle worth solving. We know it would be easier if we used a slick system based on additional parts. It would cost more to produce the rigs. You would pay more for yours.

The existing tensioners work very well. They are strong and powerful. The tip tensioner is 4:1. If you can pull 50 lbs that's a lot of purchase even after friction. The rigs benefit from tensioning low stretch fabric against low deflection carbon. Light weight stiff rigs out perform sloppy soft rigs. The 4:1 tensioner allows a more precise adjustment to luff tension.

Suggest you appreciate the light weight and simple tensioners we use. Get to know your tensioners to avoid tangling. Believe it or not we routinely assemble and disassemble without removing gloves.

There are some suggested lengths for rigging tensioners and control lines based on the Kitewing 3.0TW. Best read the latest owners manual for your rig posted to the files section of the Kitewing web site at **Kitewing.com.**

Suggested lengths based on 3.0TW: tip tensioner: 60 inches, camber inducer: 42 inches, batten tensioner: 15 inches, tack tensioner: 16 inches, outhaul: 36 inches

Set up your rig without tensioners. Rig tip tensioners to allow removal of tensioners from the tip wand. Once you have your rig correct and tangle free, tape the tensioners to the tip wands or tapered tubes so they are less prone to tangle. Extra string can be, should be or you will cut the stuff with your skates, pushed in to luff tube or batten pockets.

Chasing the line from the knot at the D ring to the tensioner is a good way to start untangling a tensioner. If they were rigged correctly they do not need to be re rigged to untangle.

Some tips: Tip wands and tapered tubes can remain taped to their tensioner. SK821 can be stowed with all the parts captive within the rolled sail. Same thing applies to the Skimbat. While the tip tensioners remain fixed to wands or tubes the tensioner strings are not likely to tangle.

If you rig the 3.0 TW to allow tensioners to remain on the tip wand you will have to stow the tip wand within the luff tube along side the front tube extension.

Editorial note: At least one happy sailor has reported that solving the strings puzzle is therapeutic.

Kitewing SK821 NOV23

SAIL SAFE: Check the ice. http://lakeice.squarespace.com/

Wear picks.

Carry a throw line.

Convert your pack to a floatation device with a dry bag. Never leave your pack behind.

Plan to self rescue. Practice.

Wear a helmet

Learn to recognize ice conditions when you see them. Without recognizing the importance of temperature and ice composition, ice thickness is not a gage of ice strength.

How many times does it take to fail before you learn to read the ice and practice common sense?

We all know what they say about thin ice. Check the ice where you plan to go, especially before you start to sail fast. There is always thin ice some where.

Make sure all the members of your party know the ice report.

Speed is important. The faster you are able to get out of the water the easier it is to warm back up. Quality clothing can be wrung out. Carry a puff jacket and puff pants in your dry bag. A large heavy duty trash bag is a light weight and effective wind breaker. All involved need to be prepared to act quickly to get out of the water or to assist.

Picks are designed to be worn around your neck snug under your collar. Outside all clothing the picks are easiest to use. Picks in a pocket are next to useless. Swim out of the water on to the ice, horizontal body position is best, use the picks for traction. Turn around and go back the way you came to strong ice, slither or roll to stronger ice. Practice with your picks.

It is difficult to self rescue from water over the ice edge if you are not swimming horizontal. Jack knifed on the ice edge wastes energy and time. It is difficult to get past the edge of thin ice when inflated vests or clothing can snag. Remember it is most effective to swim in the water to slither on to the ice. Distribute weight on thin ice.

Throw lines are an obvious tool. Remember to control the safe, or belay end. Ice screws are useless in thin ice. Ice screws waste time. However on thick enough ice you may require a dead head. Practice pulling some one on the ice with your throw line. Keep loose line in front of you. Sharp skates cut throw lines, you seek to avoid entangling yourself. Back up to stronger ice.

Convert your pack to a floatation device. Skates can be heavy. You cannot swim with skis on your feet. Inflatable vests work, float jackets work better. A pack which floats with a waist belt fastened can significantly assist to float your body. Purpose built packs for skaters with leg straps are an option. Never leave your pack behind.

Self rescue is a lot easier when you plan ahead. Visualize the steps you will take. Consider all scenarios. Talk it over with your sailing or skating partner. Practice with your picks and throw line.

Trust your instinct. If you do not feel comfortable on the ice, get off the ice. Logic dictates.

Now go find some ice. Love it.

Hard ice with rain water on top. SK821. The ice has some layers of transformed with clear ice beneath. This ice continued to generate new ice crystal growth despite air temps above frost.

CHECK THE ICE: The ice is never safe. We are responsible for our selves and the folks with us.

Checking the ice is a priority. To avoid falling through the ice, know ice conditions when you see them. We have been observing and practicing for some time. Here is some nuance. Its our point of view, maybe not the only vantage point.

So you arrive at the ice. Its cold out. Puddles are frozen solid and the ground is set up hard with frost. Temps are in the low 20s and high teens at night. The ice machine is on.

Step on the ice. Does it crack under foot? Stomp on the ice, same question. An easy check.

If the ice does not support you without cracking it could be too thin to go any further.

We use an axe. Some use a pole. Once I have verified the default ice condition, I do not sail or skate with a pole or an axe. I do not want the extra weight or complication. I carry a small hatchet in my pack to cut blocks if I am touring.

The axe as well as the hatchet are marked with a convenient ruler to measure ice thickness. Use the back of the axe head, strike the ice hard. A lot may be gleaned from the blow of an ax. How does the ice crack? How thick is the ice? What is the ice composition?

An ax can be pulled up against the bottom of the ice sheet through a cut hole to measure ice thickness by the marks on the handle of the axe.

Calibrate your axe, use a rafter square to mimic the straight line of the bottom of the ice sheet relative to 90 degrees to the handle of the axe. The axe head is curved, it does not flush to the bottom of the ice sheet.

What is the air temperature?

Ice strength is related to temperature, thickness and composition.

As the ice ages it may thaw and re freeze. The ice thaws along grain and crystal boundaries. Picture thin black ice which is clear like glass. After a thaw the same ice may re freeze with lots of visible bubbles trapped within. The bubbles indicate changes in the ice structure. The ice melt and freeze cycle eventually transforms the ice from hard clear black ice to opaque weak ice gone to candles. Even after transformed ice re freezes it is not as strong as clear hard ice the same thickness.

It is very common to see thin black ice which has been etched by a thaw, reset by frost. The grain and crystal boundaries will be defined by bubbles clear to see. This sight could be a visual clue of potentially weaker ice.

“Gone to candles” is an old expression to describe ice which has severely transformed. By chopping a block it is easy to identify. Blocks chopped from transformed ice will have rough edges or break in small pieces. Ice will show a distinct vertical structure.

Recognize that ice changes as it ages. If the ice remains below frost from inception to date it is strong stuff compared to ice which has weathered the exigencies of temps above and below frost. The type of ice makes a difference.

We chop blocks from the ice to gage the ice composition. Chop a block to verify ice strength. Does the ice break along clean sharp cracks or does it shatter to show a rough edge with a vertical structure? It is easy to measure the thickness of chopped blocks withdrawn from the ice.

Chopped blocks can be left installed on the ice as sentinels or marks to thin ice. Back in the day we used to chop branches from shore to stick in holes to mark thin ice. The ice blocks are easier. We can come back days later to observe the effects of weather on our chopped block to gage climate history. Blocks left vertical can be interpreted by the next person.

The hole we make in the ice can be observed, does the water start to re freeze? Refreezing is a good sign. When your hole does not re freeze it indicates what may be happening within the ice sheet.

If you are unable to chop a block of ice from the ice sheet without shooting zipper cracks, the ice may be too thin to explore.

Are there layers within the ice? Frozen puddles might indicate clear ice, while the default thickness of the ice might be opaque transformed ice. This is common in the spring.

Snow ice might be supported by a stronger layer of clear hard black ice.

Snow ice: as a rough rule, may require about twice the thickness of hard black ice to match strength. Snow ice is frozen slush or saturated snow with varied composition.

Early season thin ice often shows layers of transformed ice which indicate freeze thaw cycles.

Layered ice may display transverse cracking. One layer will break one way, the other another. Observing cracks may not indicate the true thickness of the ice. Layered ice may not be as strong as clear ice without layers of bubbles. Temperature is crucial.

“Zipper cracks” are a shooting crack which starts from you. Zipper cracks are the ice screaming at you to turn around and go back, get off the ice.

Zipper cracks are different from a "shooting crack" which may be the ice adjusting to your weight. However shooting cracks on a thin ice sheet are a warning. The ice is getting thinner. You need to re evaluate the circumstances.

Bouncing on the ice to initiate cracking is a good way to gage the ice. As you approach open water, bounce on the ice to see if you can induce waves in the water. With practice you will recognize what amounts to a thin ice condition. Common sense prevails.

To an extent, temperature depending, the noise ice makes can indicate a relative thickness. Experienced ice checkers can evaluate ice strength based on the sound our skates make, or the sound of shooting cracks.

Obviously it takes a bit of experience to be able to judge ice by sound, or ability to generate a wave in open water, or by the appearance of the surface. When in doubt, stop to re assess the condition.

After you have stepped on the ice without undue reactions, explore a bit further. Use your axe or your poke pole to gage the ice. Often protected coves freeze early. You are looking at the ice to distinguish visual clues. Watch for visual signs which may indicate changes to thickness as well as ice composition. Chop additional blocks or holes to measure thickness and verify ice type, or to mark thin areas.

Venture further slowly. Listen and watch for shooting cracks, beware of zipper cracks. Check an entire area, attempt to gage the default ice condition. Do you want to invite your friends?

Check the whole area you intend to endorse.

Thin early black ice is best left alone as temps rise above frost.

Watch the shavings your skates leave behind. Are the shavings melting? Air temps are not as critical as ice temp. Thick sheets of ice can maintain frost while air temps are above frost. Thin ice does not have the same capacity.

Without defining thin ice by thickness you are compelled to appreciate temperature and ice composition. There are a few folks out there who presume on the strength of thin ice sheets based on thickness ignoring all else. In any case, a rough rule of thumb: black ice less than 2 inches thick is best left to experienced or bold or ice inebriated rapture captured zealots. Ice too thick to chop through is thick ice.

As far as I am concerned thin ice is marginal ice which can give up strength quickly due to rising temperatures. Thin ice is the minimum which supports you under ideal conditions to the maximum thickness which does not as conditions deteriorate. Thickness could vary from 1.5 inches to over a foot of rotten spring ice. "Thin ice" is best recognized as the feature of an old declaration.

We all know what they say about folks who skate on thin ice. Best to not.

When your axe head punches a block through the ice, the ice is potentially weaker due to some transformation to vertical structure. Stay off this ice as temps rise above frost. When the ice block breaks like safety glass it is transformed.

Nice ice yields to the blow from the back of an axe head with a cone and spider web radiating cracks. Hard thick ice may show a small dent without any cracks, just the crushed surface under the axe head.

Watch for cracks in the ice caused by expansion and contraction of the ice sheet. Is the surface of the ice like a mirror or does it show distinct plates? Are reflections on the ice broken apart by the different attitudes of ice plates? Thicker ice will show tectonic cracks, the surface will not be optically correct.

New black ice will show distinct crystal formations. Older black ice which has thickened is smoother, whether by sublimation or elastic deformation of the ice sheet. In time you can recognize the sharply defined crystals of new ice compared to older potentially thicker black ice.

Snow ice or frozen slush is strong enough while it is frozen. Sunshine and warm can soften snow ice quickly. Air within ice creates a solar energy trap.

In the spring it is often the case to be supported by a thin layer of re frozen on top of water saturated slush. Chopping a hole within but not through the ice sheet allows you to gage ice condition of thicker transformed ice. Is water welling in to your hole through the melted boundaries of transformed ice?

Free surface water within the ice sheet indicates melt. As you are supported by a thin layer of frozen while the bulk of the ice sheet is thawing it is only a matter of time before the surface melts and you end up swimming in a sea of slush. Self rescue is not an option if you are alone far from shore when the ice transforms. You will be trapped.

Beware of ice sheets in the spring. It is easy to underestimate the degree of thaw within spring ice sheets.

There are more environmental conditions which affect the ice. Springs, gas bubbles, streams, outlets, shorelines, birds, shallow or deep water, currents as well as snow affect the ice.

Go to Lakeice: http://lakeice.squarespace.com/ Know your ice.

At Lake Ice there is everything you need to know about the ice.

Recognizing visual clues of ice type and condition are key to avoiding accident.

Visual clues are important. Changes to ice composition are important. Changes to temperature are important. Constant vigilance. **Most, if not all, ice accidents are the result of a failure to recognize conditions.**

Check an entire area before you start to sail fast.

Be especially wary of any ice when temps rise above frost. Especially thin ice. When temps rise re evaluate.

Know thin ice behavior.

Carry a floatation device like a dry bag in your pack, wear picks correctly. Carry a throw line. Wear a helmet.

Plan ahead so you will not be surprised if you go through. Identify risk factors like predicted temp changes, shorelines, outlets, inlets or other changes which may indicate weaker ice. Discuss the ice report with your party. Practice with your picks. Practice with your throw line. Practice pulling your partner over the ice with your throw line.

“There is always thin ice somewhere.” Leo Healy

“Ice will suffice.” Larry Hardman

“Ice is nice.” John Doe

Have fun.

Ice block left vertical marks ice check for the next person.

Old vss new. The old ice is etched by thaw along crystal and grain boundaries. The new ice is not solid yet. Pix shows the long spears of crystal formation with water between. This is early season thin black ice. Thaw and rain affected the older ice. The old sheet floated away from shore on higher water levels.

Cut block left to mark the thin ice hole. Thin ice is obvious, defined by the older, more opaque ice edges.

2 inch cut block marks thin ice between sheets of older snow ice. Note hatchet has been callibrated. Edge of block shows distinct layer-swithin thin ice which are caused by thaw cycles.

Kitewing Product Development: notes 2023/24

Obviously, we have a new frame.

There are three designs in play. 5.0TW is the next rig in line for the 8D frame system.

We use tapered tubes with the same 8D frame to rig a performance 5M skate sail which is an extension of the Skimbat which uses the same tubes.

5.0 is currently in a test cycle to see how the new frame holds up under heavy sailing loads.

We built an improved SK rig based on the new 8D tube. SK825 is a Dyneema sail with windows, the bent tube generates dihedral, the sail is maxed to fit the frame.

Dyneema does not absorb water which is an advantage on rainy days.

Sailing without Y tubes is an advantage. Y tubes add about a pound to any rig as well as aerodynamic drag in the worst possible place. Suggest there is a learning curve to an advanced appreciation, the path is worth the time spent learning.

Traditional Kitewing: In the EU folks seem to be reluctant to move away from traditional rigs built at Kitewing OY. The old rigs work well enough.

5.0 TW proto type. Without Y tubes, Y tube brackets visible on front tubes. NOV23

Food for thought: Weight saved by using carbon frame materials with lighter sails has made the old designs obsolete. Kitewing LLC 3.0 Sport, the 4.6, and 6.0 Pro are improved designs. Light weight rigs out perform heavier rigs in the same sail area class. In some cases, light weight rigs of smaller sail area will continue to out perform heavier rigs which are unable to fly at low velocities.

Sail area or wing area is all about the boost or the ability to fly a designated load. Bigger wings have more lift. However the big rigs weigh more. At some point in light air any rig has to be able to fly its own weight. It is the rigs which can fly at the slowest speeds which have the widest performance range. Smaller rigs with less drag have the highest speed potential.

Light air is our dominant sailing condition. Who wants to stand around because the heavy rig cannot fly until it is blowing a steady 8-10mph?

Inflatables have taught us the value of a sail area to weight ratio close to 1sqM over 1 lb of rig weight. Beyond the ratio, wing shape determines aerodynamic efficiency. Once the traditional rigs start to fly their own weight they become more efficient than the softer and less aero inflatables.

Wings with stiff spars and battens are likely to be more stable or hold their shape through a wider range of loads. Hard rigs are likely to be more aerodynamic with better leading edge profiles and less drag.

Understanding the rig is an important step. Tuning the rig correctly to match the wind condition is a technique which separates better sailors from beginners.

While what works is completely subjective. There are a few constants.

Draft location, depth of camber and twist or wash out need to be adjusted to match wind condition.

Aerodynamic drag and surface drag are limiting conditions. Use the smallest rig you can get away with to limit top end aerodynamic drag. Bigger rigs have the power as velocities pick up, until the drag from a larger wing starts to be a factor.

At Kitwing LLC we continue to focus on light weight easy to handle or manipulate efficient rigs. Go sailing. There is something for everyone at Kitewing.com.

An early 4.8M version of the 5.0 on the same 8D frame. Wendy likes her Y tubes.

“Wing foiling on water is fun but is more like a go kart when compared to the Formula 1 feeling of sailing Kitewing on ice.”

“I drive around with a lot of gear in my car. The SK8 21 is the perfect slender package that I can keep with me and never have to repeatedly load and unload from my wagon.”

“I find that a Kitewing can perform in wind conditions from 0-30 where others can not. Lightweight construction and the ability to tune the rigging of the wing to the conditions means a more surgical quiver and maximum performance.”

Brooks Saltonstall JAN24

Stacey Keefer Kitewing 3.0TW
NOV23 Maine USA

Exploring Maine by Skates

Like many places, winter in Maine has had a lackluster start. But what has been lacking the most is snow. Without much snow on back roads, we have been thrilled to be able to access remote northern ponds and lakes for skate sailing.

Getting into skate sailing has been a life changing experience for me. I used to get a bit of winter depression but now winter is my favorite season. It is so fascinating to explore some of the state's thousands of water bodies by skate for the first time. In summer it would take us all day to explore a lake by kayak (while swatting pesky bugs). In winter we can cruise all over a large lake in a few hours. I much prefer having an eagle or two flying around versus thousands of mosquitoes.

In our first five weeks of the season we have skated and sailed on fifteen different ponds, lakes, and bogs. Ten of them were places we had not previously skated or sailed. Going remote can be a gamble for sure. We may not find suitable conditions --you don't know until you go, but the rewards almost always outweigh the risk. Preparedness and safety become hyper-important in the backcountry too. But self-rescue should be the plan anywhere you get on ice.

For touring, the Skimbat skate sail is my current favorite. If there is no wind it is easy to carry over your shoulder as you skate, then set up when the wind picks up. This happened recently where we skated a large lake in northern Piscataquis County for a few miles and even walked one short portage around an open water area. I enjoyed my lunch on a sand beach with old turtle nests. Then once we skated onto the big fetch, the breeze filled in and we sailed the rest of the day. There is so much exploring to be done and I am grateful that Maine lakes and ponds are my winter playground.

By Stacey Keefer

Dyneema Skimbat end on. Compare center of rig or boom to the outboard batten. While sailing, the outboard batten defines the wing tip which has less attack angle. In theory the wing tip will stall after the center of the wing. Outhaul tension changes degree of twist.

Skimbat powerskater. 15JAN24
99615 USA