

FM Slalom Tech Series

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Selecting a Ski Size

Ski construction continues to progress significantly reducing the “average” line length and allowing skiers to be more controlled and consistent.

At the same time, lightweight ski construction means skis can be longer, but are more sensitive to fluctuations in water conditions. So understanding all aspects of ski behavior is vital to maintaining performance levels.

This article is about the factors to consider when selecting a ski size and then what to expect in setting the ski up for maximum performance.

To investigate the ski length issue we experimented with riding skis of 67.5, 66.25 and 65.5 inches as the water temperature dropped off this fall.

We also studied video of the pro events 10 years ago, when Andy and Wade were battling it out on 66” skis, and compared those to current events.

Is Bigger Better?

The short answer is yes; in most cases a ski of greater length is better. From a handling perspective, a longer ski provides greater forward-back stability through the wakes and a more stable platform on which to generate speed from the boat’s pull.

A longer ski also reduces the chance of stalling out around the buoy and there is a greater margin of error for body position into and out of the turn. This margin is often the difference between a fall and carrying on.

A skier can maintain lift and floatation at a slower speed and build more speed behind the boat when pulling. Both of these attributes benefit the execution of skiing on shorter lines.

Ski Wheelbase

The first objection an experienced skier would raise to a longer ski is the ability to turn. Much like a long wheelbase on a car, a long ski in “stock” configuration will make rounder turns, because the fin is positioned further from the front boot heel.

Skis are typically CAD designed at one size and then scaled up or down to make the different lengths.

The scaling process effectively lengthens the “wheelbase” of the ski, defined as binding center to fin center. That’s one problem.

A bigger ski also rides higher in the water. Therefore another issue is getting the longer ski to bite properly, getting the ski tip engaged to build tip pressure, cut speed and negotiate a fast, short radius turn.

A light skier upsizing on a ski will likely encounter both of these issues.

Implementing a Longer Ski

If the binding center to fin center is too great for a skier or conditions, the ski will not have sufficient SIDESLIP in the pull. This might sound desirable, but it’s not. Without the right amount of sideslip, the load of the pull builds as the skier approaches the wakes and exceeds the skier’s capacity to hold the pull. This causes the skier to be pulled precariously OTF at the wakes.

So it is vital that the correct fin center (Fc) to binding center (Bc) be achieved and maintained in changing conditions throughout the season. It is this dimension that is especially important for safe skiing.

In the past, I’ve addressed the binding center to fin center issue on a longer ski by moving the boots back to shorten the Fc to Bc distance thereby increasing slip. But this move aggravates the problem of insufficient tip bite, which really shows up at 35 off and better. With boots back, and certainly in viscous or firmer water conditions, the ski’s tip is propped up and there will not be enough ski in the water to properly execute a pre-turn and solid turn.

When the water is firm, the boots should be forward *and* the Fc to Bc has to be reduced because the ski will slip less in the firmer water. This means the fin must move forward substantially, with the boots moving forward as well to aid in achieving sufficient tip bite.

Cold Water, Three Sizes

This fall my 67.5” ski suffered immediately from insufficient tip bite and rounder turns as the water cooled off quickly. So much so that I was at the end of the adjustment range for moving the fin forward. (I am 185 lbs)

Going to a 65.5 ski solved the tip bite issue, for sure. There was a slight feeling of stalling at the turn as the tail could be driven too deep, and the ski didn’t accelerate as well or feel as stable in the wakes.

Moving the next size up to a 66.25 with suitable adjustments improved the feeling of stability. But I still missed the feeling of stability on 67.5 length.

By now our water was into the low 50's. So to put theory to test, I took the 67.5 ski and filed the fin to allow more forward adjustment in the fin block, and moved my bindings about 0.25" ahead of stock settings. The ski's handling responded well, with ample tip bite and excellent turns.

While the conditions and ski were not was energetic as in warm water, I was happy with the way the ski handled.

For 2005 I've purchased 67.5" Goode which is still a bit longer than the Mapple to see if I can adjust-in the characteristics I need from this slightly bigger ski.

Going to a Longer Ski

Warmer water skiers will certainly want to look at larger skis, to achieve acceleration and floatation in the softer substance. You'll automatically ride deeper in less viscous water, and skiers may run with the bindings back a notch in this situation to keep the tip from biting too much or getting too deep.

Cooler or northern skiers have a greater challenge implementing a long ski. As discussed, the bindings will have to be moved forward along with the fin. But another problem arises when the fin is substantially moved forward. Because the ski is riding higher or more toward the surface of the water, the ski will lose some of its "traction" ability to resist twisting toward the boat after the second wake. Twisting toward the boat at the finish of the pull is undesirable, because you immediately lose ground in the course and width into the next buoy.

To solve the loss resistance to twisting, the fin is set longer, in some cases much longer. The depth must be reduced accordingly so that the fin area is maintained near the stock fin area.

Buying your Next Ski

Ski manufacturers usually specify a wide range of skier weight, for each size of ski so these charts are not much help for specific advice.

We've compiled this chart to assist in ski sizing. Going out of range with a large ski will take more work to setup. On a big ski, side edge modifications may be required. Our general opinion is to use the largest ski you can "get away with" to aid in stability through the wakes, floatation at the ball and resistance to stalling out.

Wt.	Sz	Goode	SixAM	HO	KD	D3
120-140	65"	64			65	65
140-160	66"	65.5	66	66	66.	66.
160-180	67"	66.25	67.5	67	67	67
180-200	68"	67	↓	68	68	68
200-220	69"	69	69	69	69	69

Adjustment Table:
Add or subtract to weight depending on skiing conditions & speed.

+/- lbs	-15	-10	0	10	15
Speed	38	36	34	32	30
Water/ Viscosity	Cold /Hard	Cool/ Firm	Normal	Soft / Warm	Softer/ Hot