



Sailing Tips by Chris Kitchen

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Series 3 – Downwind Sailing

Tips for downwind Weta sailing

There is a fine art to mastering downwind asymmetric (gennaker or screecher) sailing. In many races I have seen the fleet open up on the downwind legs due to speed differences between sailors. In these tips I will go into reasonable detail of the various factors effecting downwind speed of the Weta in the hope that you will be able to gain a better understanding of what makes your Weta hum!

Whether you are eyeing up the European title or perhaps looking at getting to your downwind picnic spot a little quicker I am sure there is something here for you to pick up. I remember one long distance race I did and was given a hiding by a local who I just could not keep up with on a broad reach. I enjoy days like that analysing why there were speed differences (... well not at the time!). It can be difficult to pin point exactly what makes one boat faster than another given there are so many variables when sailing.

General principles of sailing downwind with your gennaker (asymmetric sail).

If you sail downwind in a monohull with no spinnaker or gennaker you will usually sail directly towards the leeward mark, after all you are physically able to do this, unlike the upwind leg. But if you have a gennaker it may be faster to sail angles to the mark, i.e. To gybe downwind in the same manner as tacking upwind.

When sailing downwind in the Weta with the gennaker unfurled, it is quicker to sail higher (closer to the wind) even though you will have to sail further to get to the mark. This is known as VMG – velocity made good (google VMG if you are still guessing!). Meaning you can generate speeds that are so fast that even though you sail extra distance, you would still arrive at the bottom mark earlier than someone who sailed a direct line between the upwind and the downwind marks. This is the way all current high performance sailboat's sail downwind.

The following tips (in order of importance) should help you improve your downwind sailing performance!

1. It's ALL about the steering

The biggest thing that you can do to improve your downwind Weta sailing performance it is your steering!

The reason that steering is so important on a Weta is the following:

- It has an asymmetrical sail so you are using apparent wind downwind which changes with the wind speed, heading and your boat speed
- The flat gennaker has a reasonably wide directional operating window
- The changes in apparent wind and boat speed happen so fast it is not possible to adjust crew weight trim or sail controls in time and the only control that reacts fast enough is steering.

The general rule in all conditions is to sail high until you feel the boat pick up speed then as soon as you feel like the boat has good speed for the conditions then you need to head down a little and 'soak' with the speed. The principle that allows you to soak down is called apparent wind. It may be best to google this if you are not familiar with the term. It is the wind that you create with your own forward momentum just like the wind that blows in your face when the window is down in your car. In sailing you can use it to sail lower without going slower, but as soon as you lose your speed, you lose the apparent wind, so you need to head up and gain speed again, thus creating the apparent wind again.

As the wind gets up you will sail deeper and deeper until you are almost sailing dead downwind like in the double dammed race. I am yet to see a Weta gull-winging (sailing dead downwind with main and gennaker on opposite tacks) beat a Weta sailing angles downwind – but I am also yet to test it! I always prefer keeping speed on and sailing the angles.

With some practice you will begin to get a feel for keeping the boat up to speed yet soaking down when you can to get downwind as fast as possible. Once you have mastered this you will also need to take into account the wind gusts and the waves. You can use both these to soak a little lower at certain times.

When you get a gust of wind you will be able to soak a little lower. You just need to time your steering so that when the puff hits and the boat speeds up you steer down at that instant keeping pace on. When there are waves you will be able to surf down them maintaining speed and getting further downwind. You will notice that most of the time waves are not big enough to get the boat planning and surfing – so as you steer down the boat will slow as you lose the apparent wind and you will need to come back up and use wind to gain speed again. This is really difficult to figure out as in some conditions (say 12 knots with a little chop) you are torn between semi surfing down the waves or keeping pace and staying relatively high and only diving down slightly on waves then blasting through the back of the next one. I feel it is best in the Weta to always keep pace on.

It is a lot of work and requires concentration for extended periods of time. I find it quite rare to be steering in a straight line for more than a few seconds. In saying that the movements of the helm are very small and not always noticeable from a spectator but they do greatly affect the performance of the boat



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2. Roll Trim (side to side)

The roll trim of the Weta is important when sailing downwind as it is closely connected to the power that can be taken through the rig and the drag of the hulls in the water. It is also closely related to the what direction the boat can be headed at an optimal efficiency.

The ideal trim of the Weta is to have the leeward float half submerged – that is having water level at the horizontal join on the float hull (see photo below). When you have achieved this trim you will find the windward hull is completely out of the water reducing drag. By having the leeward hull half submerged you are creating righting moment which is used to balance the power generated by the sails.

If the boat is heeled too far to leeward you will be creating extra drag from the added hull surface under the water. Although this will create more righting moment the added power you can take from the rig does not outweigh the extra drag that comes with the submerged hull.

If the boat is sailed dead flat or slightly to windward you will incur more drag from the windward hull in the water as you are losing righting moment generated by the submerged leeward hull.

If the goal is to sail downwind with the best VMG then the ideal sitting position is in the main hull cockpit on the windward side (ie sitting in a comfortable position with your legs near the centreline). This means that you can achieve the optimal roll trim, without compromising your angle towards the mark too much for best VMG. For example if you sat right out on the windward float, you would have to sail very high to achieve optimal roll trim and some conditions you wouldn't be able to do at all.

If you are trying to make a headland or a marker and are required to sail higher than best VMG downwind, then you will be required to move crew weight outboard to achieve optimal roll trim. As you have to go higher and it gets windier you will not be able to achieve optimal trim with limited crew weight. Be careful as this is capsize territory! It may also be very slow if you are constantly burying the leeward float. As it gets windier it may be best to furl the gennaker and two-sail reach!

3. Pitch Trim (fore/aft)

This trim is important for both speed and safety when the wind starts to crank! General rule is when the wind is light you sit quite far forward (right at the front of the cockpit) and as the wind increases you move back so to keep level trim until it is 20+ knots where you sit right at the back of the cockpit aka Double Dammed styles!

It is quite easy to detect this trim as you try to sit as far forward as possible without the boat feeling like it is 'ploughing' or 'tripping' in the water. If you get any waves over the bow or feel the boat decelerate as the leeward bow is buried – move further back!

If you are sailing double handed you will be able to achieve the perfect trim in both pitch and roll for tight reaching!

There is a good YouTube video that explores the trim and steering of a Weta downwind in heavy wind. http://www.youtube.com/watch?v=WKuDEs_9sB8.



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4. Mainsail and Jib trim

Mainsail and jib trim are simple downwind.

Main – You do not need to ease much when sailing downwind because you are sailing with apparent wind.

In 0-10 knots I ease approximately 1-1.5m of mainsheet. I ease enough so that the telltales at the head of the mainsail are flying on both sides of the sail.

In 10-20 knots I only ease approximately 1m of mainsheet as you are sailing relatively faster and your apparent wind moves further forward. Again I check that the telltales at the head of the main are flying on both sides of the sail.

In 20+knots when you are getting more into survival mode I then begin to ease more main out (about 1.5-2m). This dumps power and also reduces the sail load that is forcing the boat to nosedive. If you are way overpowered then I would suggest to head very low and ease the main sail right out. You will find that the head of the sail will open right out and fall off around the side stays.

Jib – The theory for the jib adjustments is basically the same as the mainsheet in the various wind strengths however you are easing smaller amounts (30cm as opposed to 1m).

The main thing to look out for when trimming the jib is over-sheeting it. If you pull too much on then you will find it actually acts as drag and will slow the boat down. In stronger winds it can also have the effect of increasing the forces on the boat that make the boat pitch pole (nosedive). This is because when the jib is sheeted in on a reach it is powering the bow to leeward and down. This greatly adds to the risk of a capsize and should be avoided. If in doubt – ease the jib until it starts luffing, then slowly pull it back on till it just sets.

When it is super windy just pull enough on so that it does not thrash around and damage itself but creates minimal load on the boat.

5. Check you are rigging your Gennaker right

Gennaker halyard tension

Something as simple as just hoisting your sail during rigging and cleating it off can effect the performance of your downwind sailing. There are a couple of major factors here.

Firstly you need to have enough tension in order for the gennaker to furl away nicely. If there is not enough you will find the sail will not swivel nicely at the top and will furl unevenly leaving excess cloth that will 'rag' in the wind. For those of you who have experienced this you will know how frustrating it can be!

Secondly you can tune the halyard tension for tight reaching or broad reaching. General rule of thumb is that the more tension you have – the higher you will be able to sail and the less tension you have allows the luff to sag to leeward and you will be able to sail lower.

Personally I have never bothered too much with the fine tuning of gennaker luff tension as in the Weta these adjustments do not make as bigger difference as some other factors (steering!). In the light (<8 knots) you will suffer downwind with too much tension (tight in the luff so it limits flow on the sail) and in the heavy you will suffer if you cannot furl the sail away at the bottom mark or are trying to reach high. My set-up is to pull reasonable tension on when rigging (just enough see the tip of the mast bend forward without the main sail up) then cleat it off. You will lose a little tension once sailing and it has always worked for me meaning I have enough tension to furl the sail nicely but not so much the gennaker is going to suffer in light winds.

I usually rig my halyard with a 20cm loop hanging down between the cleat and the Velcro tidy strap so that I can adjust the tension on the water if needed by using this easily accessible loop. Note that on older boats with the horn cleats this will not be possible but the cleat change is easy – just ask your local dealer about it.

Replace the plastic shackles on your gennaker with lashings

Some of these shackles have had a tendency to break at a bad moment. We recommend replacing them with some 2mm

lashing or similar just to minimise any potential problems. The lashing can be any marine rope and length should be around 40cm each. Make sure you go around approximately 5 times so that the two eyelets (on the sail and on the luff line) cannot twist relative to each other. This is so that when you furl the sail by turning the eyelet on the luff line where the drum is attached, the sail will follow and furl away nicely. Be sure to do this to both the shackles at the head and tack of the sail. I recommend using a pair of pliers to remove the plastic shackles as they can be difficult to do by hand.

6. Single Handed and Double Handed configuration

Whether you are sailing singlehanded or double handed the same principles apply. It is advantageous in the lighter wind to be singlehanded, but the opposite in the breeze. You will have more hands to help in the gybes with two people. Every crew combination has a different system of managing controls so it is best to figure this out for yourselves.

A big advantage of sailing double handed in the breeze is that the skipper can sit in the cockpit at the back of the boat providing the control pitch trim and the crew can move along the back of the trampoline inboard/outboard to balance the correct roll trim. See the double dammed video for a perfect example of a crew sailing the boat to its potential.

<http://www.youtube.com/watch?v=4AlisNuG7CI>

7. More questions?

Please feel free to write to me with any more questions on topics that I may have missed. Just email me at chris@wetamarine.com with the subject 'Newsletter tips and tricks' and I will do my best to share my experiences.

