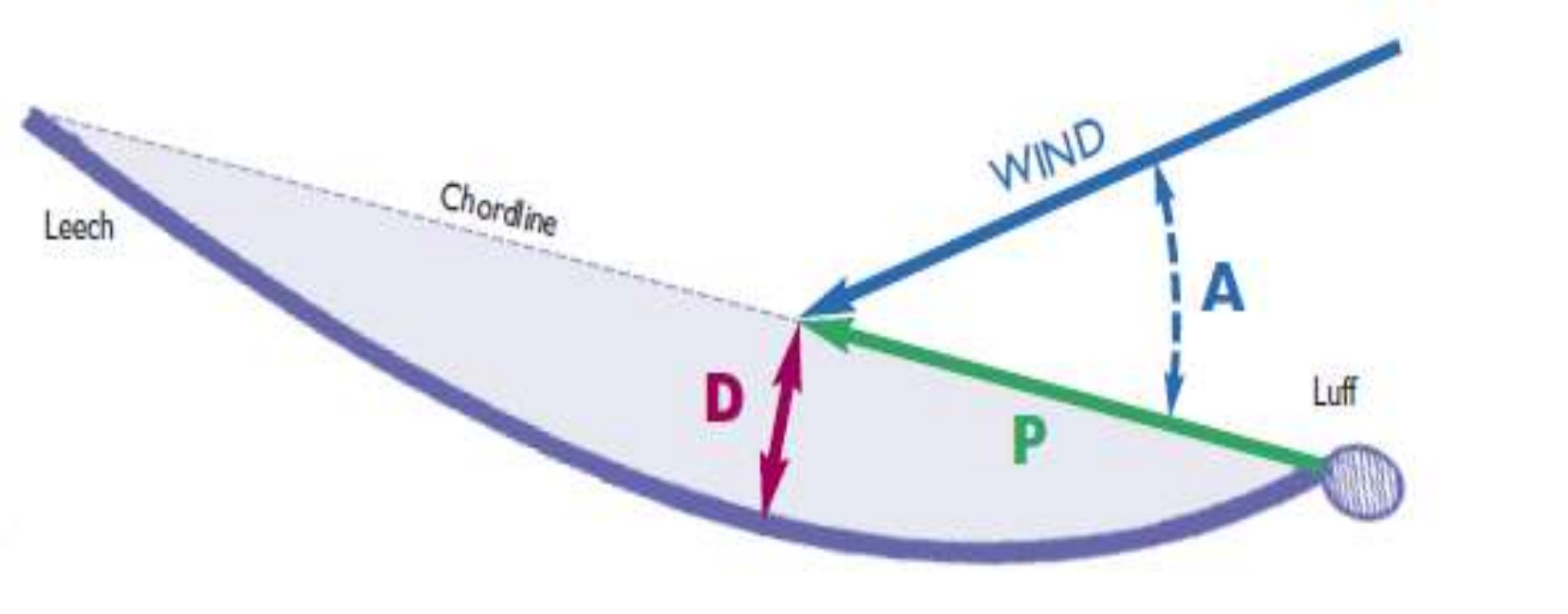
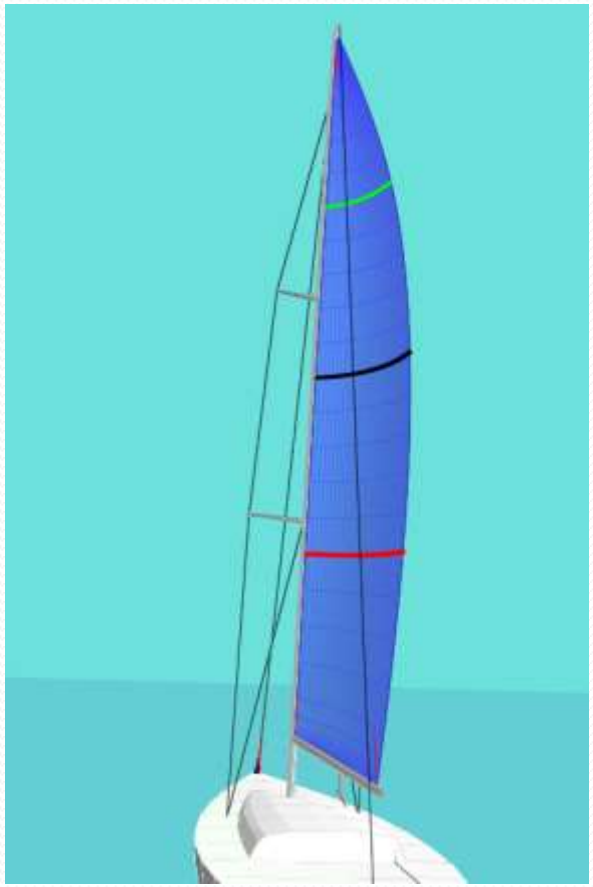
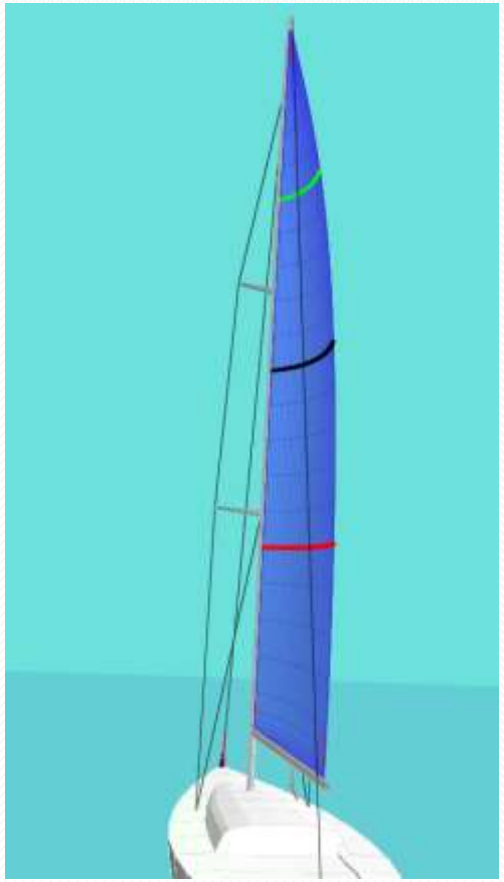
Sail Trim

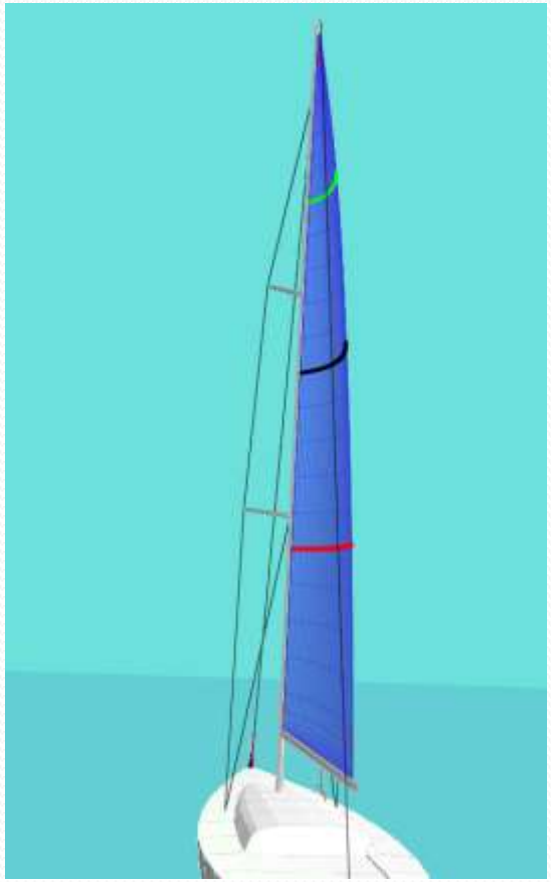
What is he talking about….



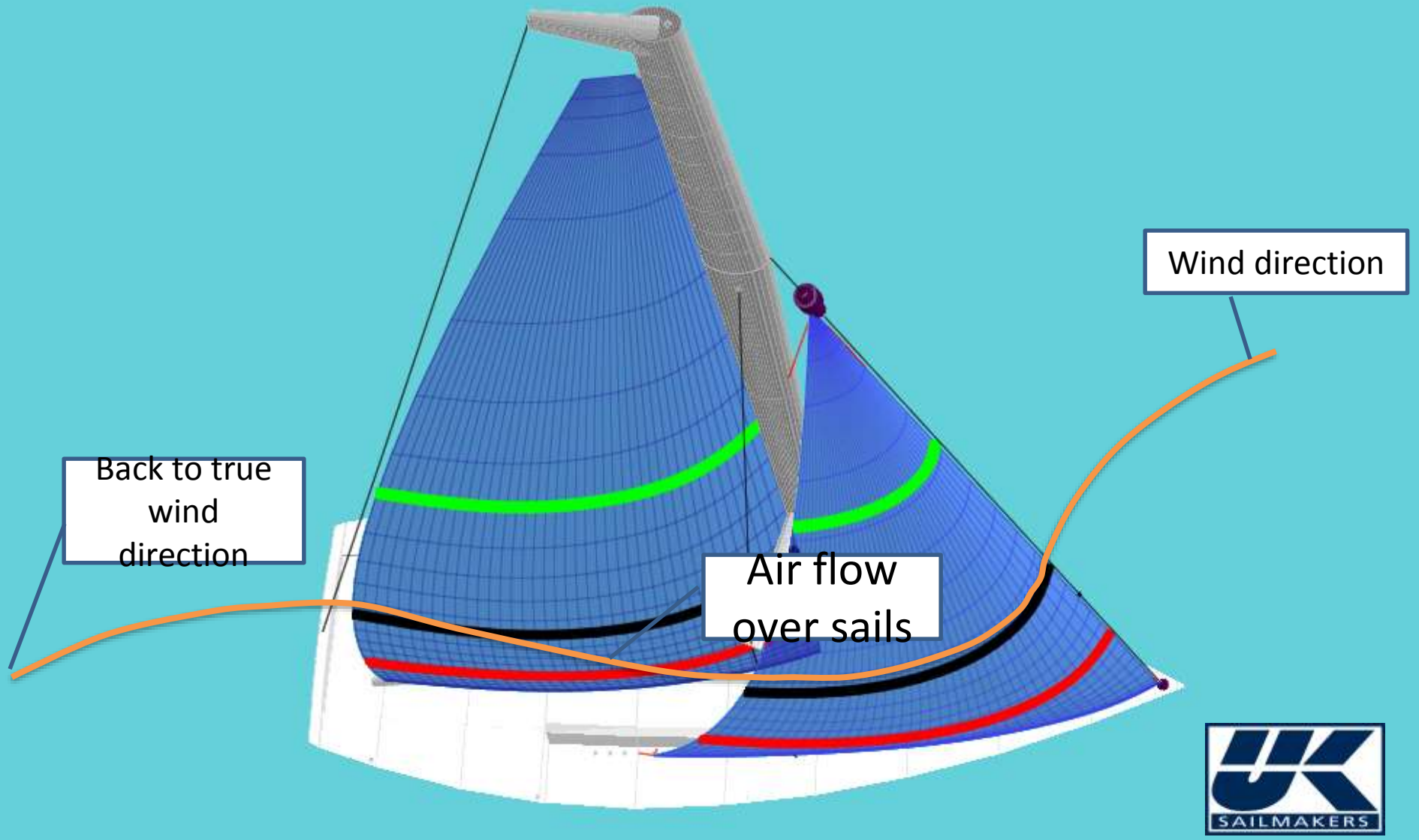
Twist



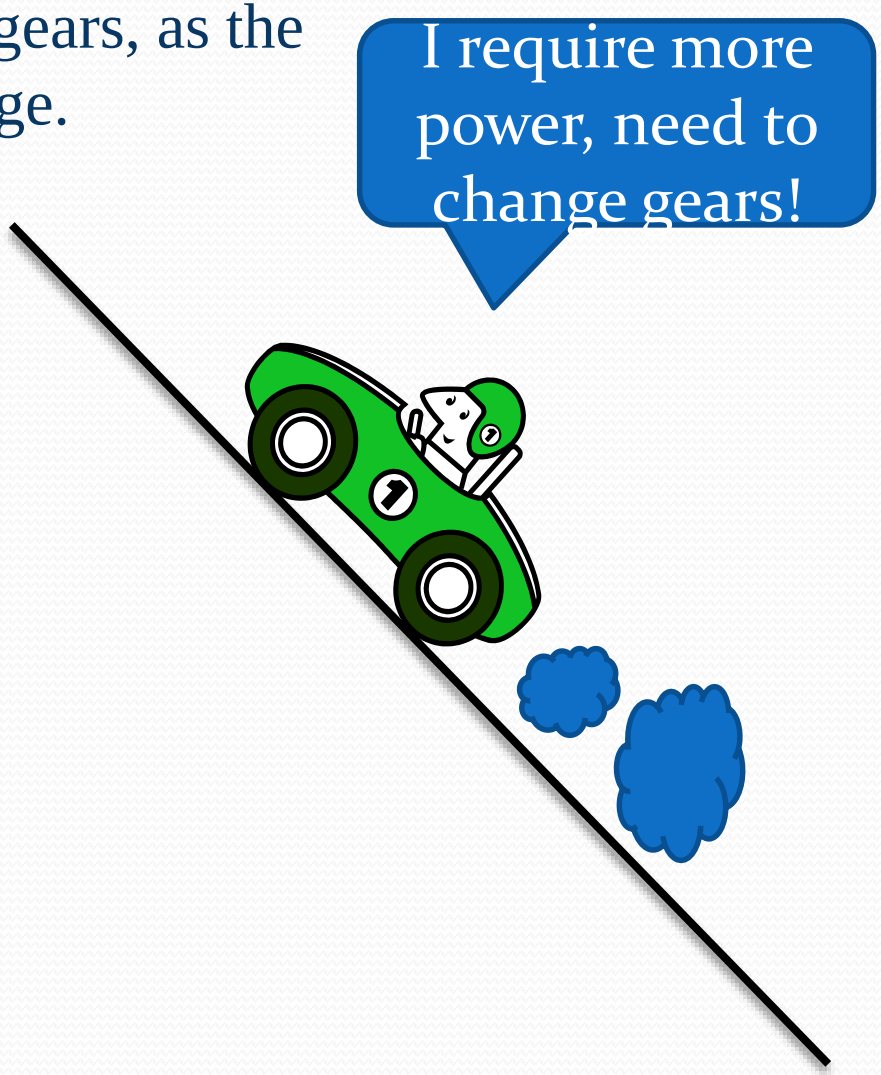




Think smart! – Think about air flow over all sails!

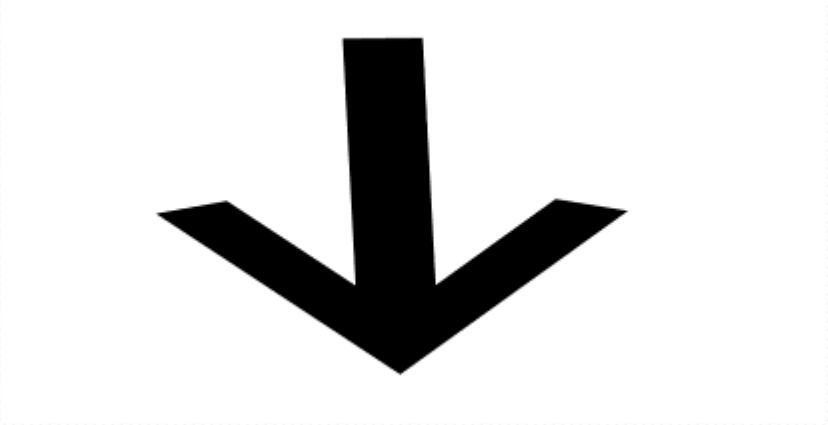


Just like driving a car, we need to change gears, as the conditions change.



What Gear?

1st – Lots of Power, Good Acceleration



3rd – Low Power, High Efficiency, Good Point

1st Gear

For light airs (under powered)

- Deeper sails, with fuller entry (especially in chop).
- More twist
- Prioritise speed over height
- Set boom on (or just below the centre line)
- Try to heel the boat
- Keep crew movement down and slow movements
- All tell tales should be flowing (not hiding)
- Usually less than 6 knots.

2nd Gear

Moderate wind (full power)

- Keep boat flat, crew weight.
- Firm the leech on the mainsail, less leech twist than 1st gear
- Boom on (or just above) centre line
- Top leech tell tales, hiding half the time (with flat water)
- Max Speed, with height
- Flatter sail plan
- Wind speed between 7 to 15 Knots.

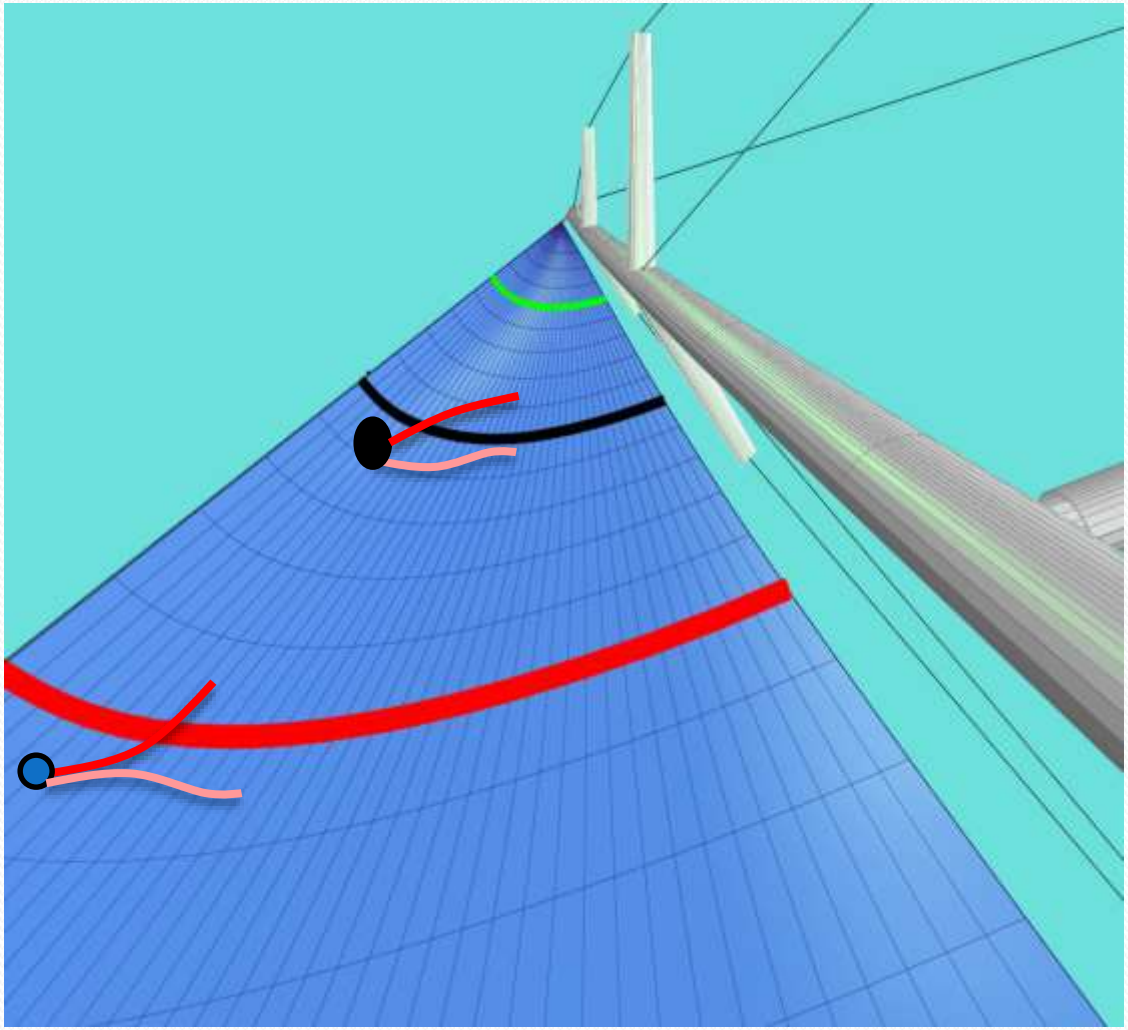
3rd Gear

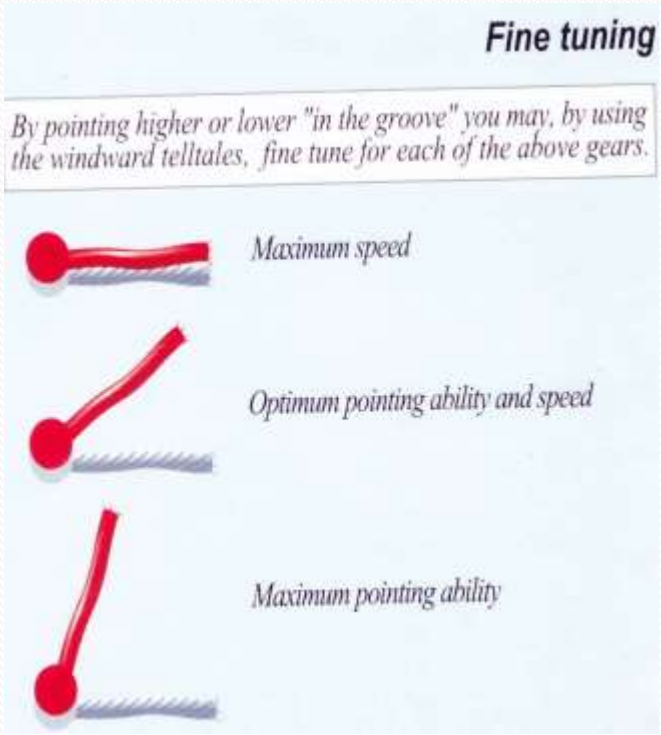
Heavy wind (over powered)

- Reduce heel, crew hikes hard …
- Flatten Sails (backstay, sheet tension, headsail car position, travele
- Twist sails open
- Sail to the conditions, keep helm balanced
- Helmsman sail to telltales, may pinch in puffs
- Mainsail trimmer, keep constant heel angle
- Wind speed + 15knots.

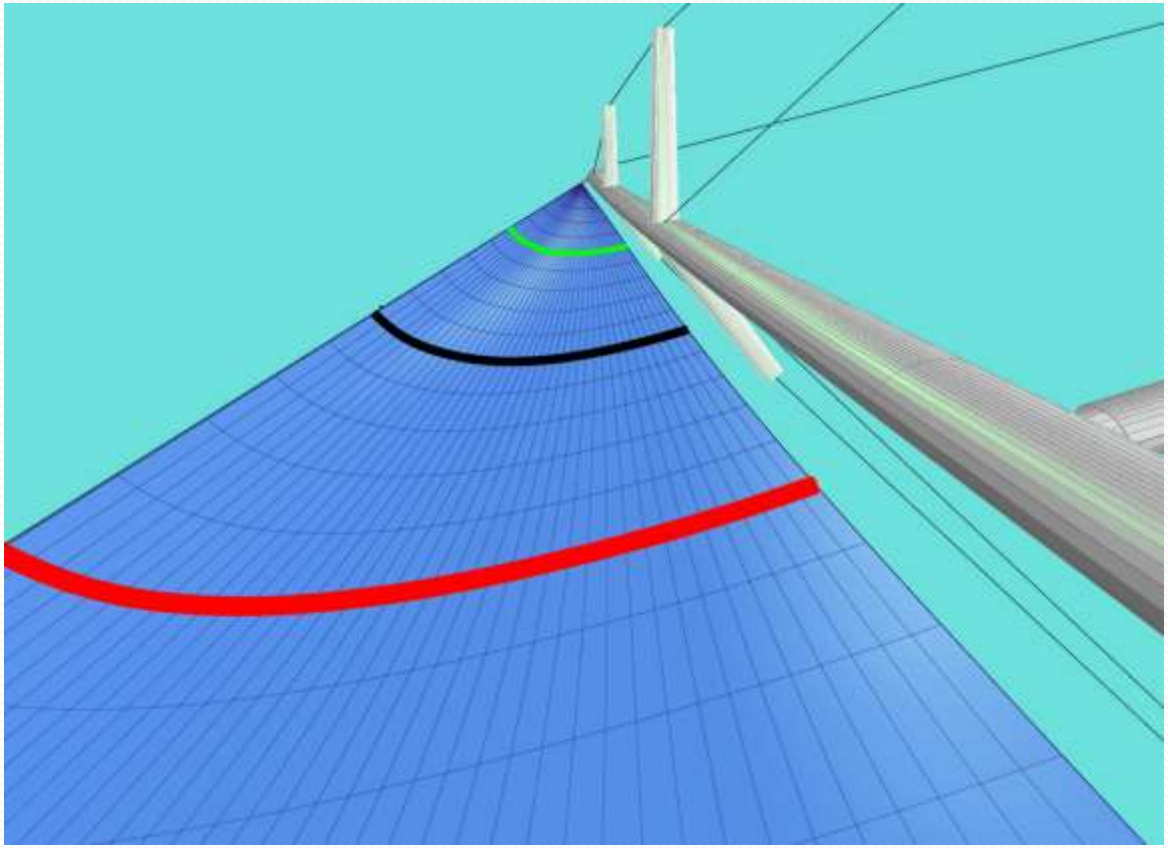
Headsail Trim

Headsail Tell Tales

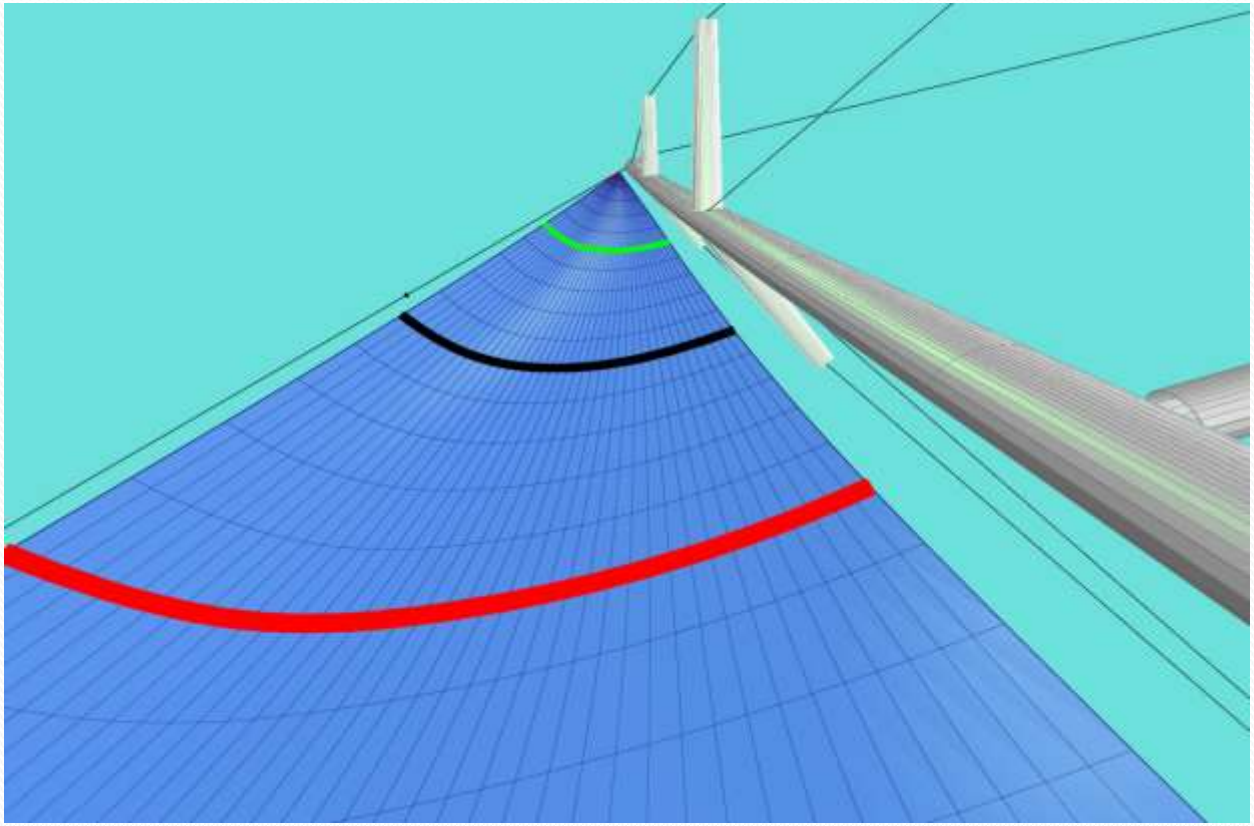




Straight Forestay.

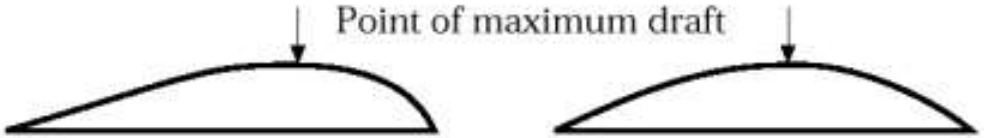


Headsail with forestay Sag.



Forestay Sag and halyard tension

HALYARD'S EFFECT ON DRAFT LOCATION



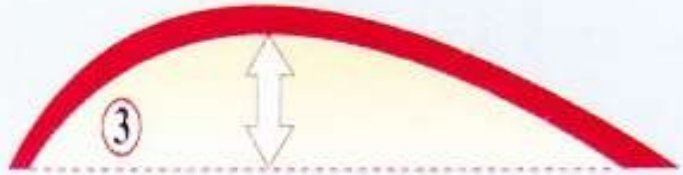
DRAFT FORWARD
Created by greater luff tension.

DRAFT AFT
Created by minimal luff tension.

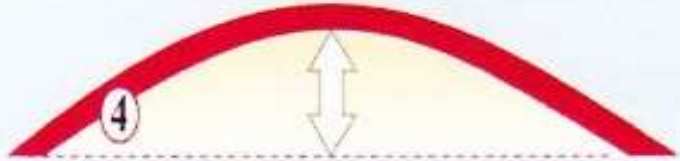
HALYARD'S EFFECT ON ENTRY ANGLE

Decreased halyard tension produces flatter entry angle, which is more likely to stall, yet allows an attentive person to point higher.

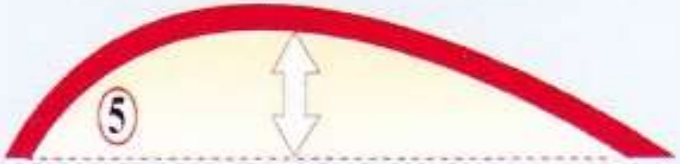
Increased halyard tension produces fuller entry angle, which is more forgiving, i.e., an unsteady helm is less apt to stall the sail.



Both halyard and forestay are medium tensioned. Draft position is 40%.



*The **stay** is now tensioned for **optimal pointing**. The sail becomes flatter with a finer entry but the draft has moved too far aft.*

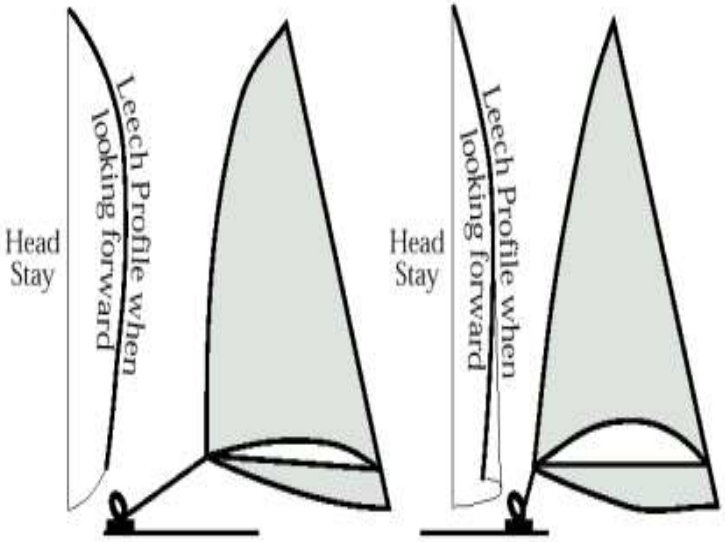


*By tensioning the **halyard** the draft is moved forward to about 45% , which will be desirable in this example.*

UK SAILMAKERS

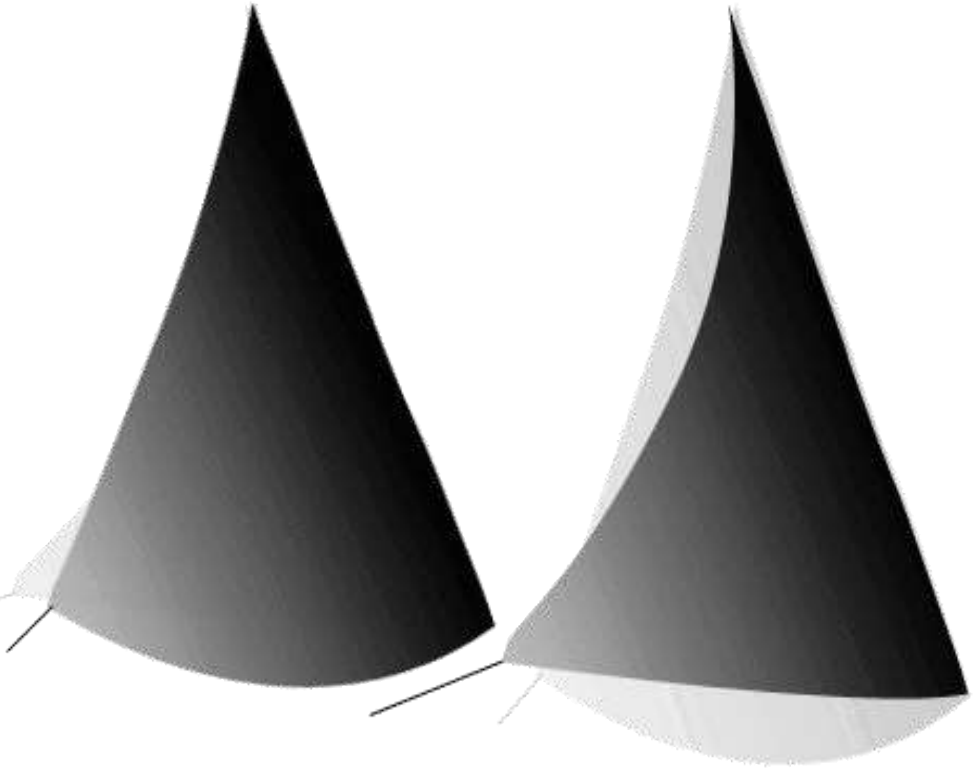
Lead Position

- Controls the “mix” from the sheet.



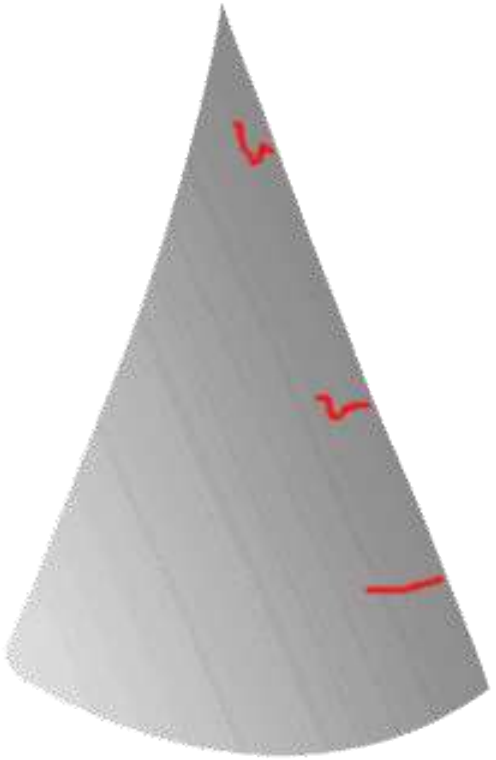
Jib lead aft flattens the foot and loosens the leech because the sheet pulls aft more than it does down.

Jib lead forward loosens foot & tightens the leech because the sheet pulls down more than it does aft.



Set the lead position, by the telltales

- Three sets of telltales on the Luff
- Try to get them flying together (approximately)

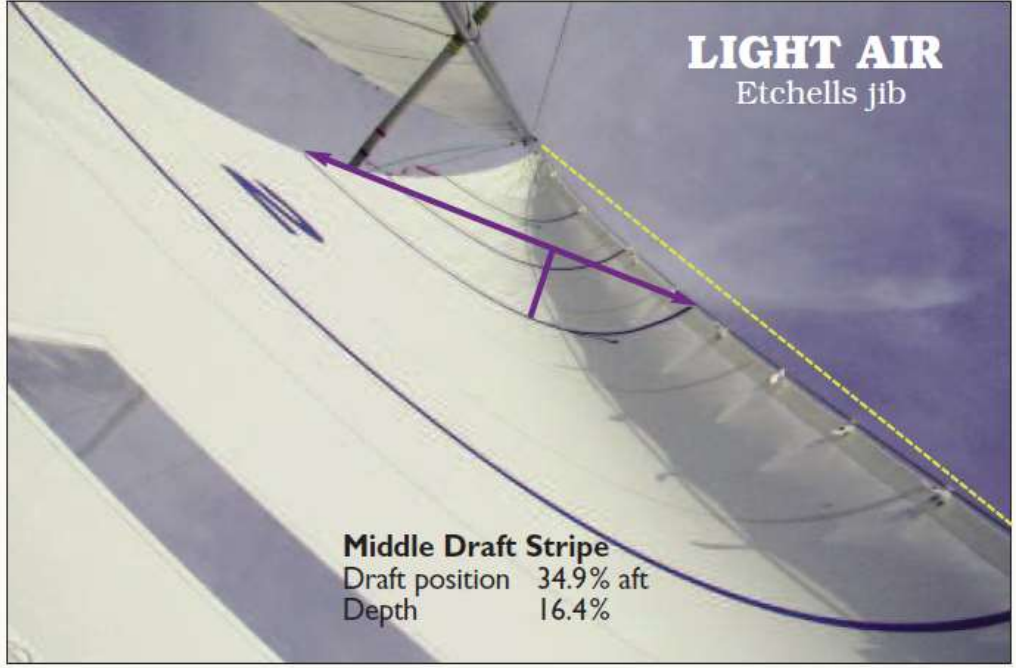


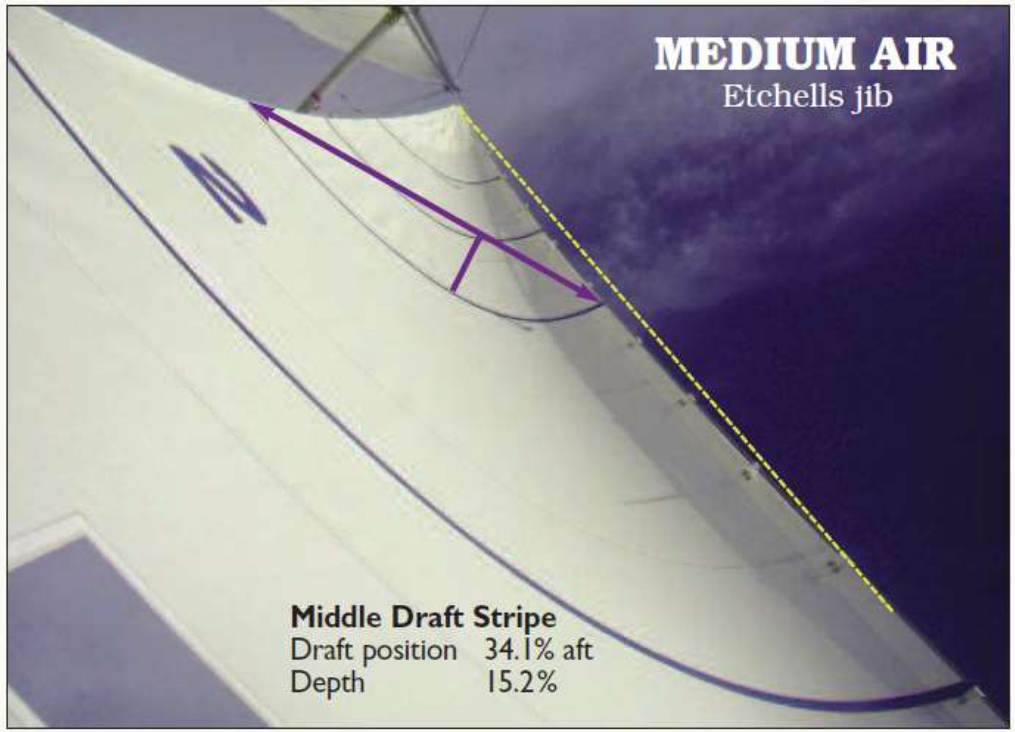
Draft Stripes

Not only do they:

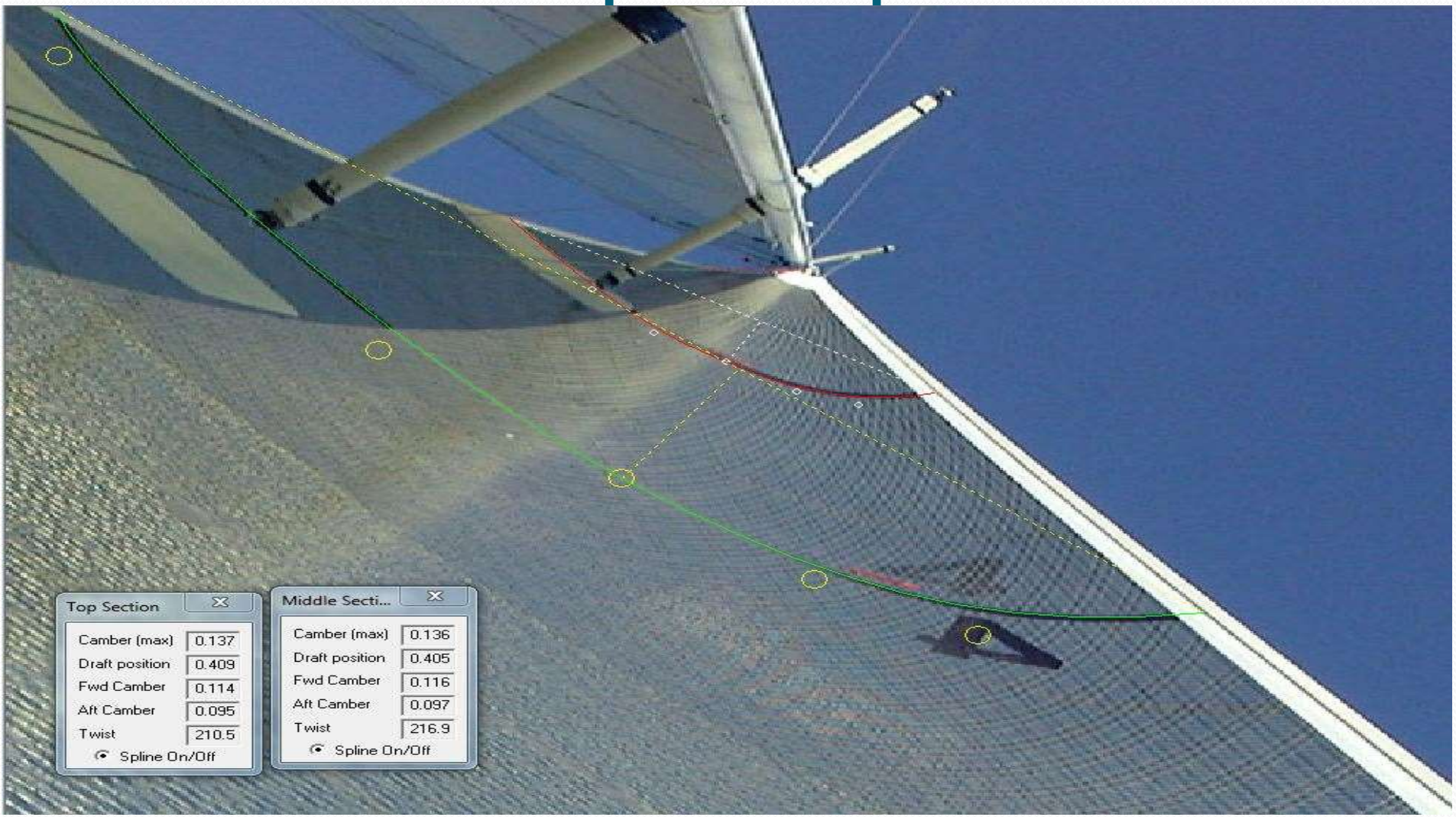
Add colour to a boring white sail!

They do make it easier to see the draft position and depth of the sail.





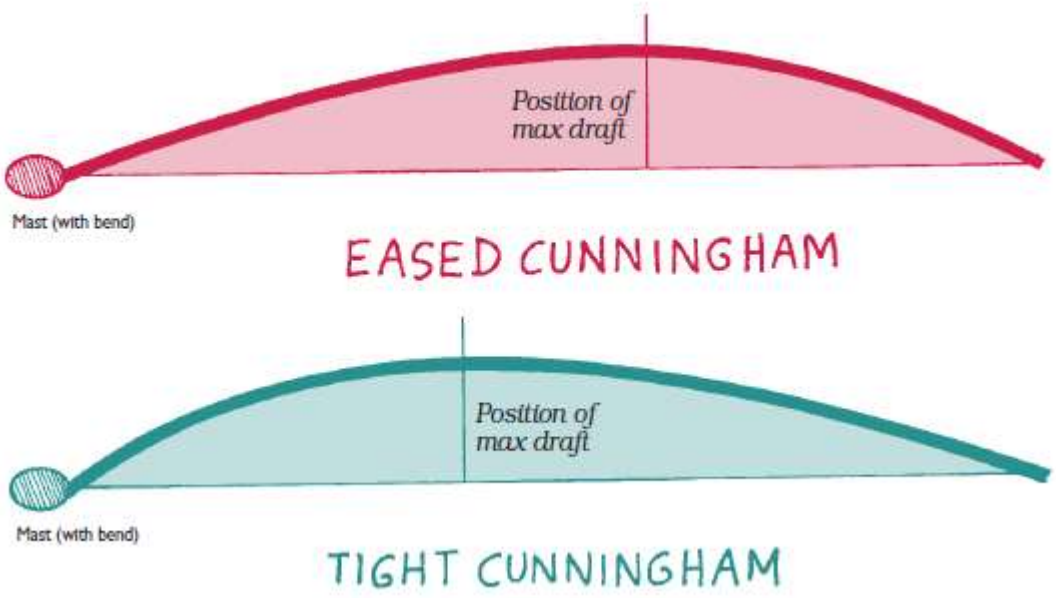
Headsail Shape Properties



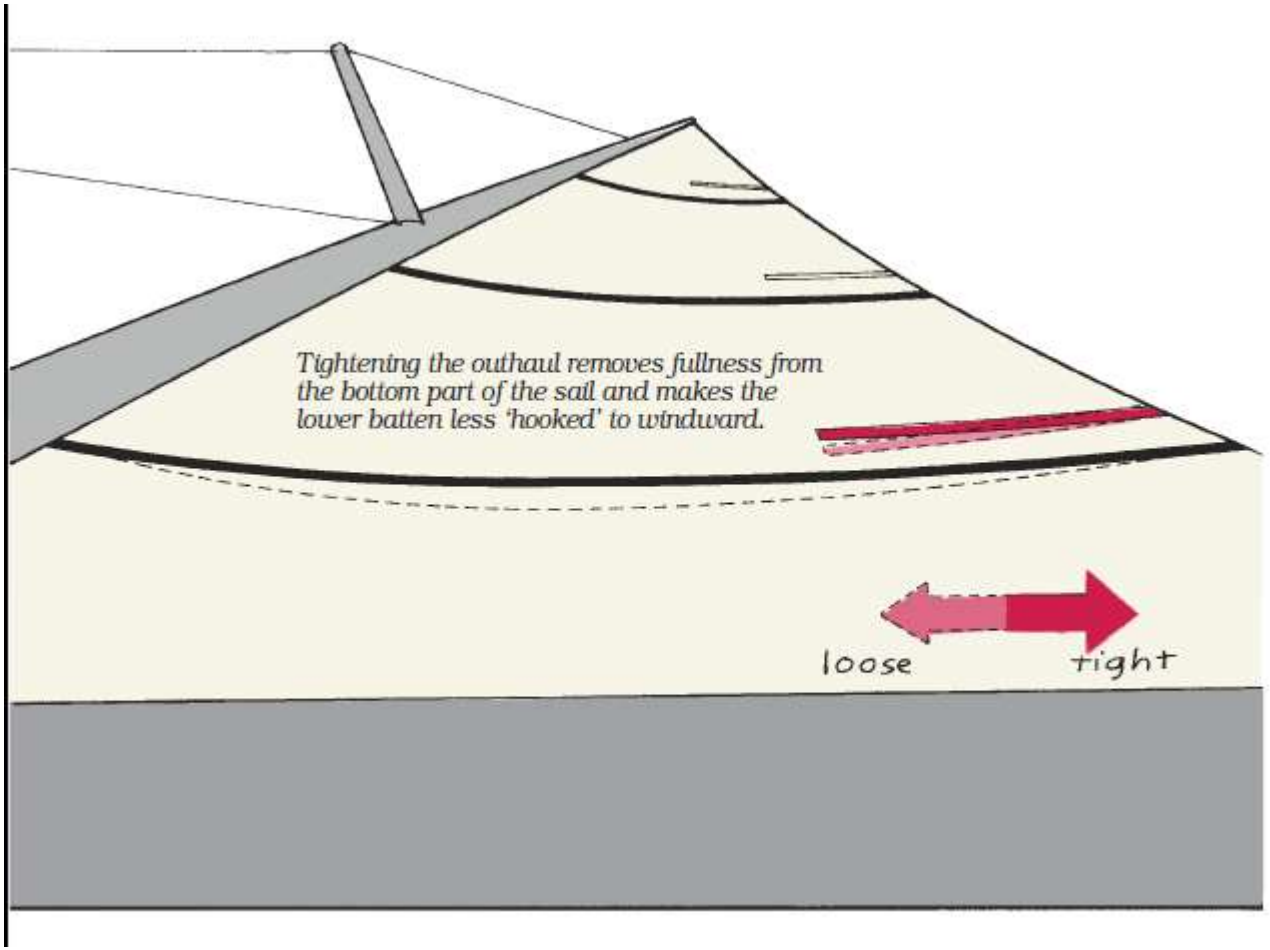
Genoa Sheeting, off the Wind

Mainsail Trim

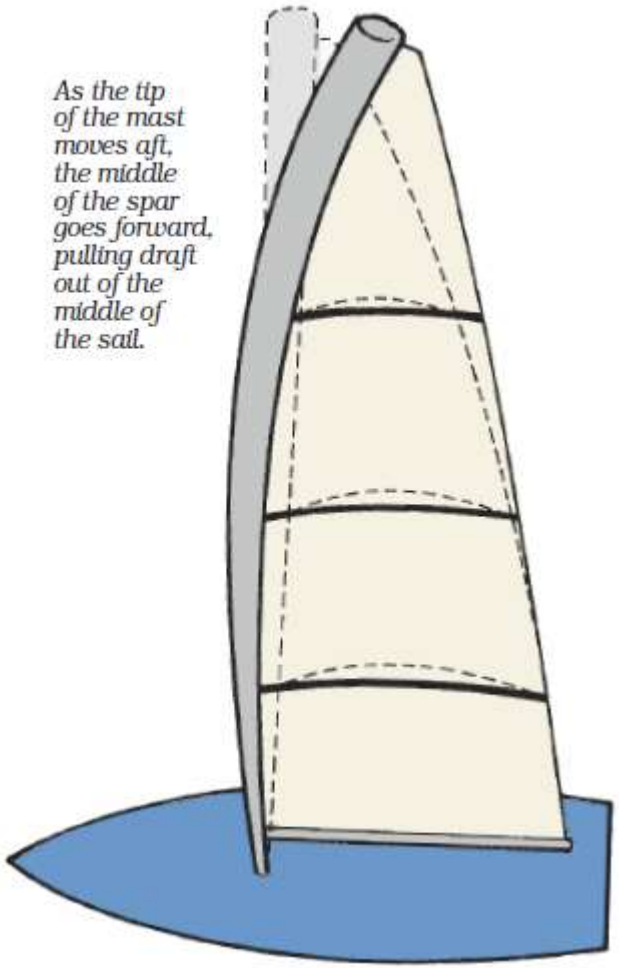
Luff Tension

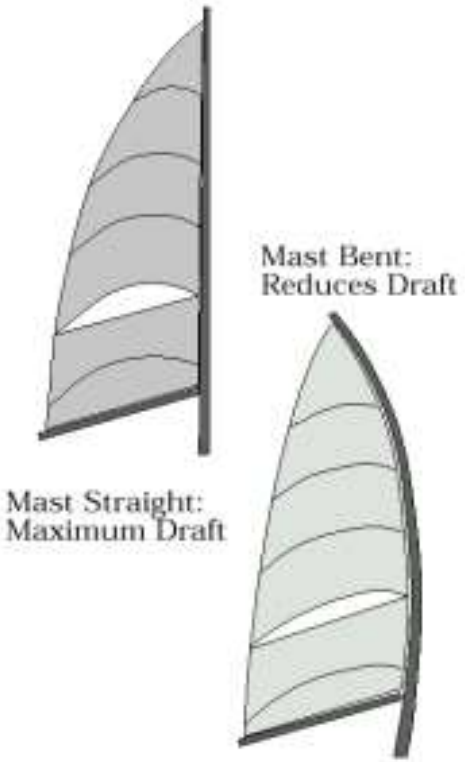


Outhaul


Tightening the outhaul removes fullness from the bottom part of the sail and makes the lower batten less 'hooked' to windward.
loose
tight

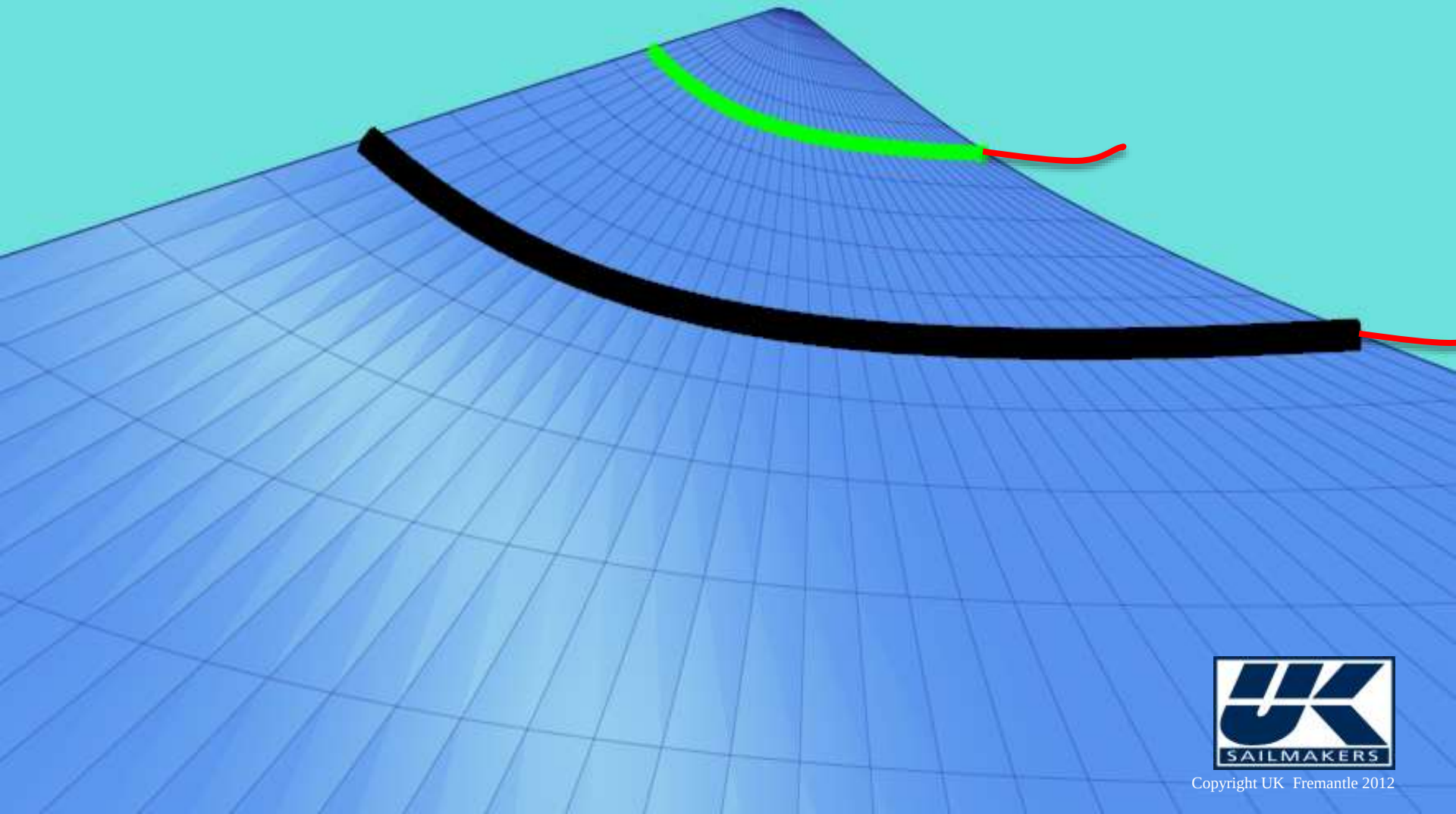
Mast Bend


As the tip of the mast moves aft, the middle of the spar goes forward, pulling draft out of the middle of the sail.

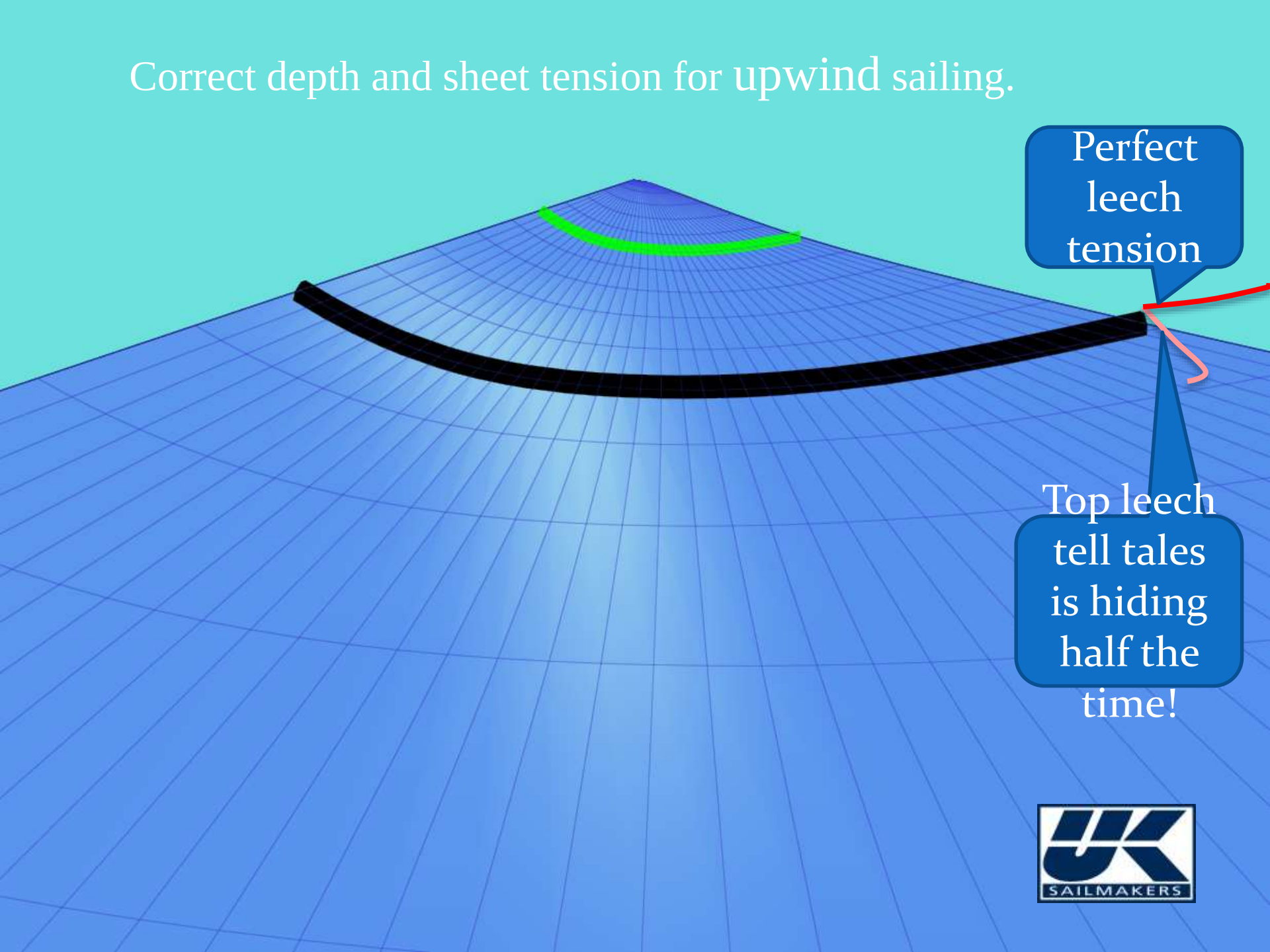

Mast Bent:
Reduces Draft
Mast Straight:
Maximum Draft

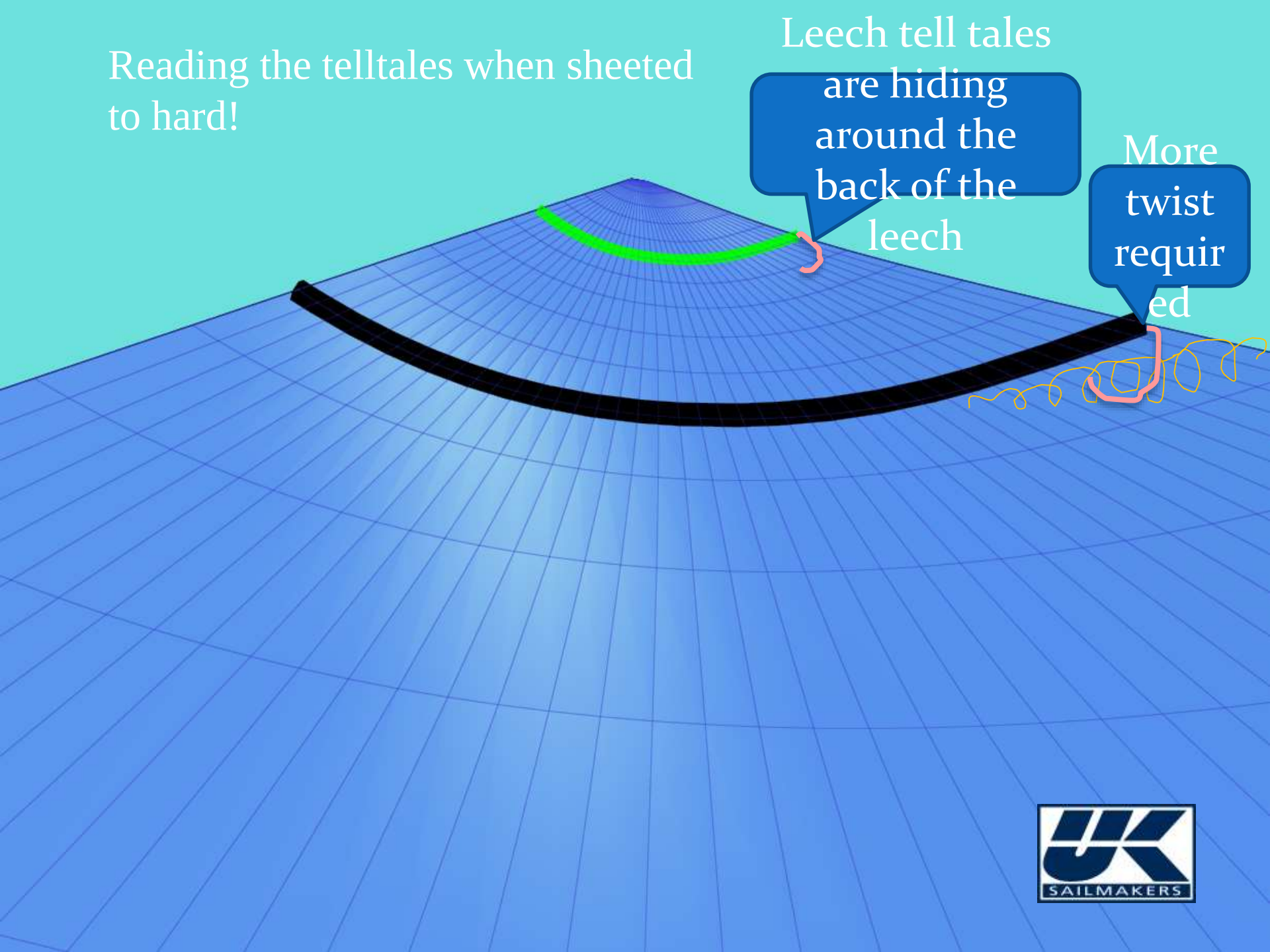
Sail trim for Speed, all telltales streaming!

Good Laminar flow = Good speed



Correct depth and sheet tension for upwind sailing.




Reading the telltales when sheeted to hard!
Leech tell tales are hiding around the back of the leech
More twist required
SAILMAKERS

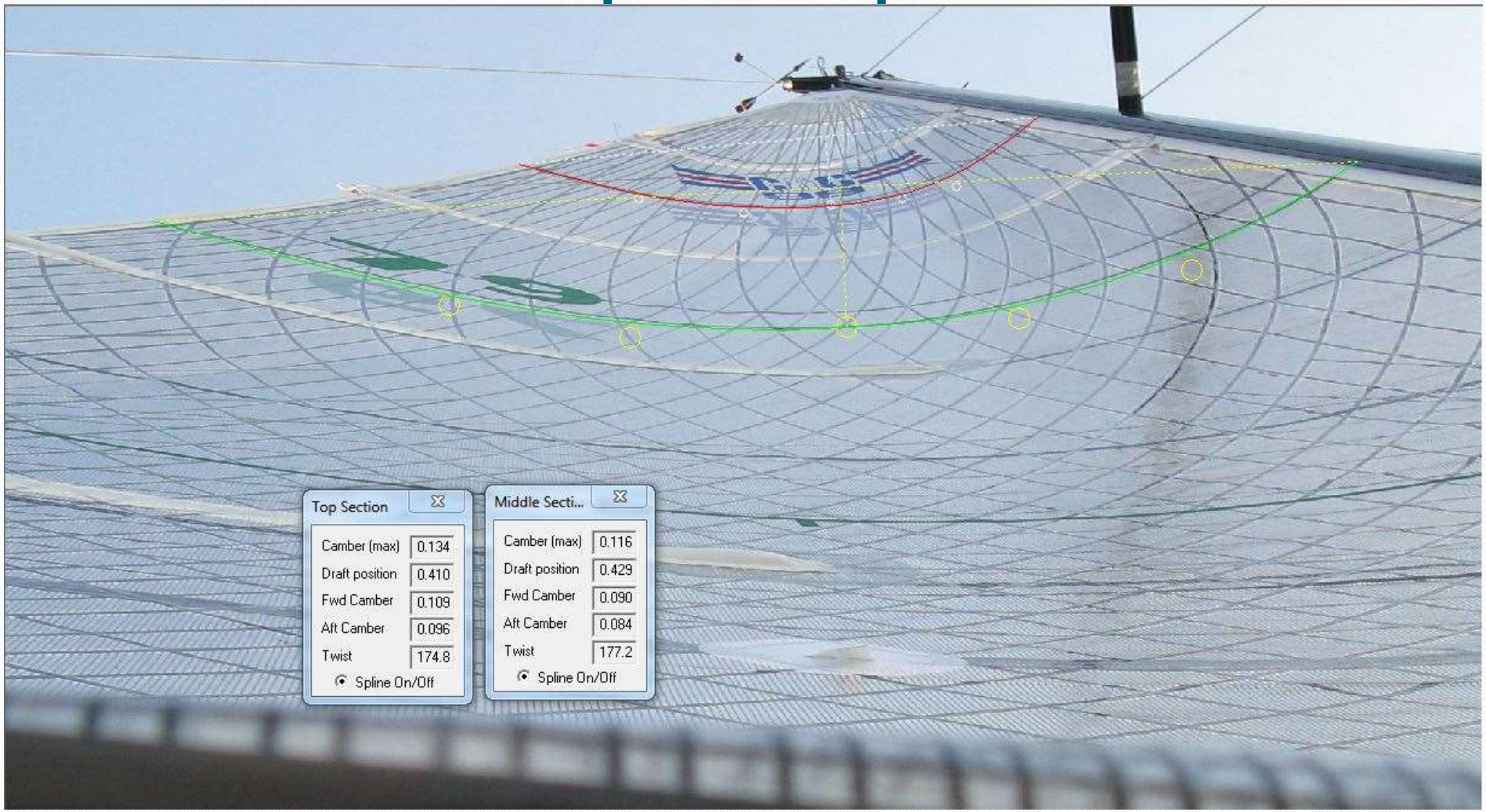
Weather Helm

- Heel
- Mast rake
- Sheet tensions
- Main traveller
- Rudder balance

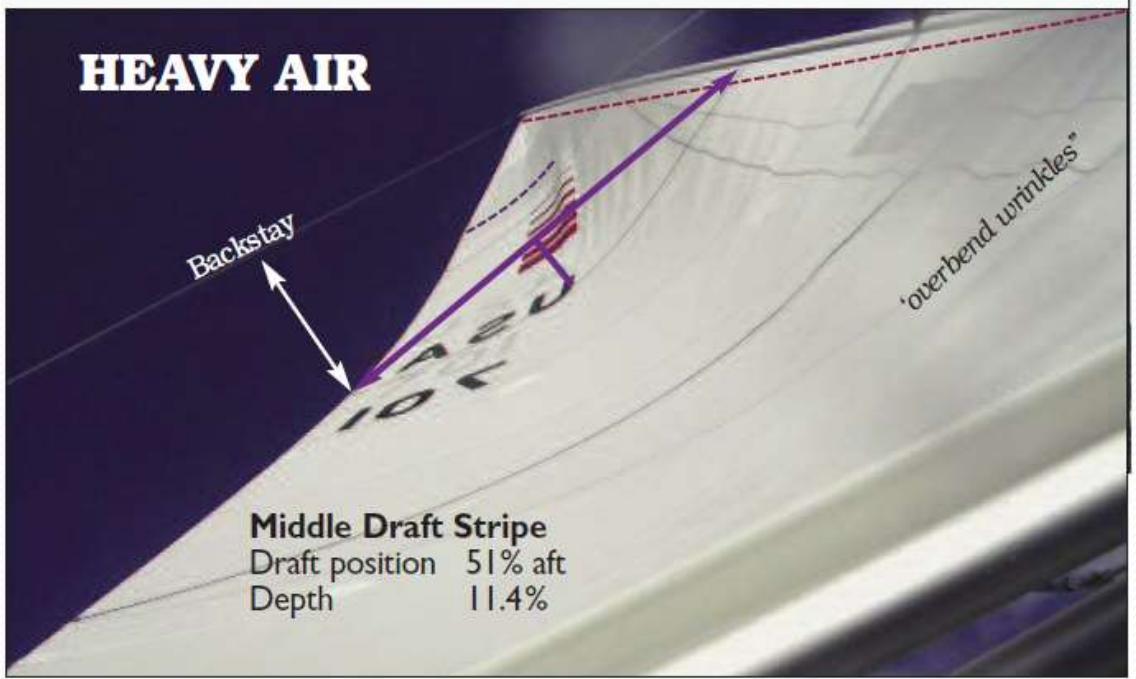
Adams 10 Tape Drive carbon Mainsail

UK SAILMAKERS

Mainsail Shape Properties

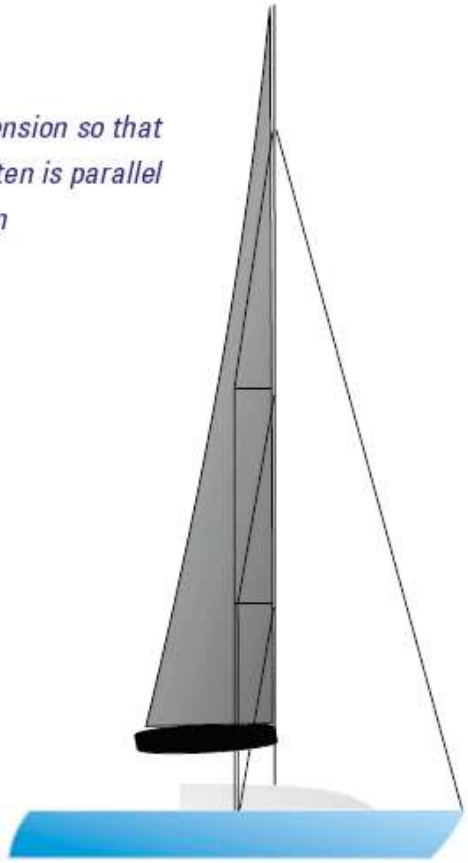



LIGHT AIR
Backstay
'speed wrinkles'
Middle Draft Stripe
Draft position 46% aft
Depth 15.3%

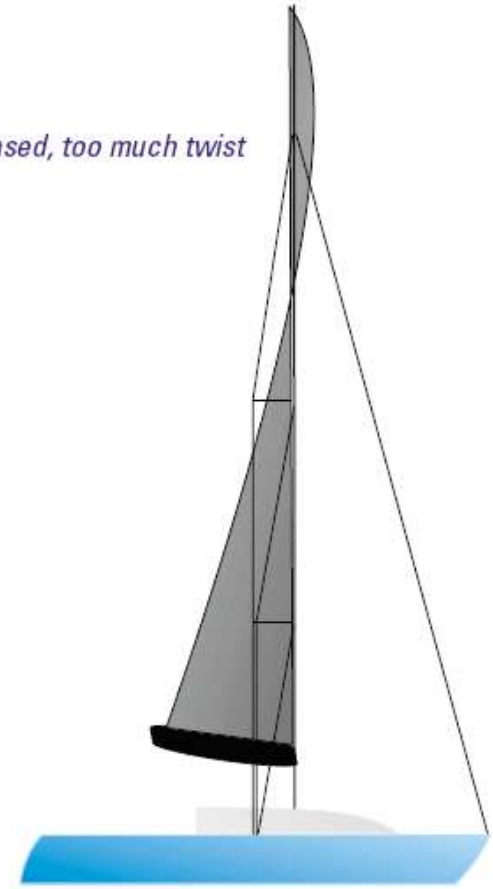

HEAVY AIR
Backstay
'overbend wrinkles'
Middle Draft Stripe
Draft position 51% aft
Depth 11.4%

Mainsail Off the Wind

Vang tension so that top batten is parallel to boom



Vang eased, too much twist



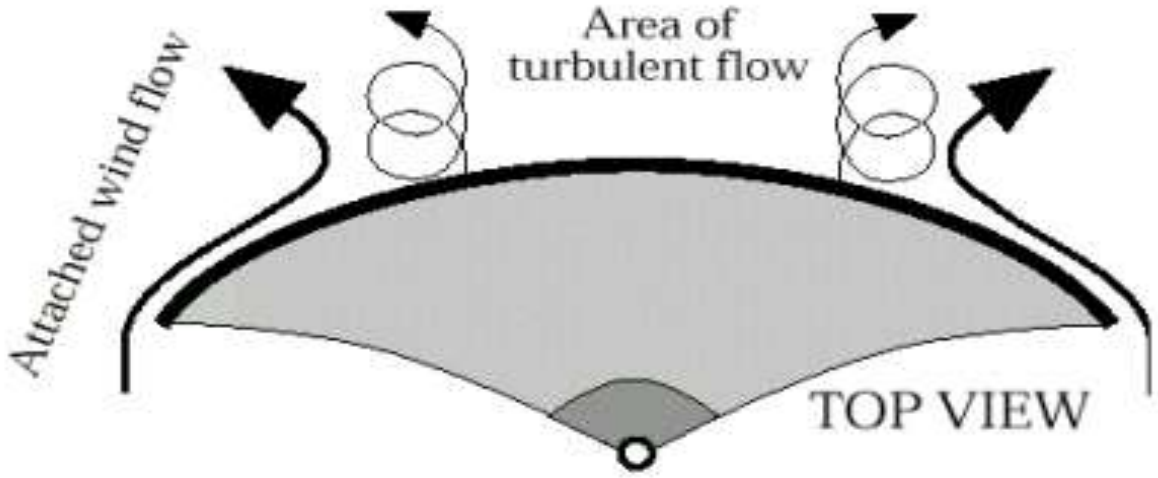
Spinnaker Trim

Handling is Important

Run vs. Reach

- On a Reach Wind Flows around the sail

- On a Run Wind hits the sail



Fore or Aft?


Pole too
far forward
Pole too
far aft
The pole angle is correct when the luff of the spinnaker flies nearly straight up as it leaves the pole. Squaring the pole too far aft means the sheet will need to be over-trimmed, causing the luff to angle off to leeward. When the pole is too far forward, the
Pole angle perfect!

Pole Up and Down

- Controls the draft position of the spinnaker Keep the center seam of the spinnaker perpendicular with the horizon
- Keep the Luff breaking even

Pole Too High

Pole Too Low

Pole About Right


1957


1957


1957


1957

David Dellenbaugh's

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Questions?

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